THE GREAT BRAIN PANIC By DON WILCOX

See Back Cover

AMAZING STORIES

JULY
25c

CARBON-COPY KILLER by ALEXANDER BLADE

Trustworthy in a hundred little emergencies

Looking back into your childhood many of you can remember your first cut finger, your first scratched foot, your first sore throat . . . and the speed with which Mother brought out the Listerine Antiseptic bottle.

In the decades that followed the discovery of antiseptic surgery, fathered by Lord Lister for whom Listerine Antiseptic was named, this safe antiseptic became a trusted first-aid in countless little emergencies. Its bright amber liquid gleamed from the white shelf of the medicine cabinet and from the black bag of the family physician.

And with medicine making magnificent strides, and research uncovering new truths each day, Listerine Antiseptic continues to hold first place in the esteem of critical millions who demand of their antiseptic rapid germ-killing action combined with absolute safety.

LAMBERT PHARMACAL CO., *St. Louis, Mo.*

LISTERINE
ANTISEPTIC

the safe antiseptic and germicide

IN SERVICE MORE THAN 60 *YEARS*

THOUSANDS of MEN NOW

Appear SLIMMER — Feel BETTER — Look YOUNGER

with Commander

The Amazing NEW Abdominal Supporter

Yes, instantly you, too, can begin to feel ALIVE . . . ON TOP OF THE WORLD by joining the Parade of Men who are marching up the highway of happier living with the COMMANDER, the amazing new Men's abdominal supporter.

GET "IN SHAPE" INSTANTLY AND ENJOY A HAPPY STREAMLINED APPEARANCE

The COMMANDER presents the exclusively designed "INTERLOCKING HANDS" principle for extra double support where you need it most. It flattens the burdensome sagging "corporation" and restores to the body the zestful invigorating feeling that comes with firm, sure "bay window" control. Order this new belt today and begin enjoying the pleasure of feeling "in shape" at once.

BREATHE EASIER—TAKE WEIGHT OFF TIRED FEET

The helpful uplifting EXTRA SUPPORTING power of the COMMANDER firmly supports abdominal sag. The instant you pull on the belt you breathe easier . . . your wind is longer . . you feel better!

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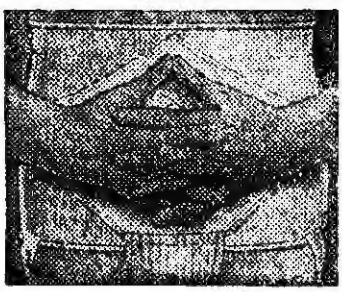
The COMMANDER braces your figure, your posture becomes erect . . . you look and feel slimmer . . . your clothes fit you better. Your friends will notice the improvement immediately.

COMMANDER IS NEW AND MODERN!

The absence of gouging steel ribs, dangling buckles and bothersome laces will prove a joy. COMMANDER has a real man's jock type pouch, with front opening. It GIVES GENUINE MALE PROTECTION. Try this amazing new belt with full confidence . . . and at our risk. SEND FOR IT NOW!



MAKE THIS TEST ➡ WITH YOUR OWN HANDS AND FEEL WHAT WE MEAN

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Only COMMANDER contains this NEW principle. A porous non-stretch material is built into the Special stretch body of the COMMANDER. STRETCHING 10 to 14 INCHES HIGH . . . in the outline of two interlocking hands for EXTRA DOUBLE SUPPORT where you need it most. NO BUCKLES, LACES OR STRAPS.

Commander Wearers all over America Say—

"I am sure you will be pleased to know that it is by far the best and most practical supporter I have ever had. I have been pleased to show it to several of my friends and they are likewise impressed with it. You shall probably hear from some of them in the future."
Dr. A. M. S.
Standish, Mich.

"Enclosed find order for another belt. I wouldn't be without this supporter for ten times what it costs."
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St. Charles, Ill.

"Received the Commander about a week ago. To say that I am well pleased with it would be putting it mildly—I can see that it fits a long felt want, giving the needed support and a most comfortable feeling. I never miss putting it on the first thing in the morning. Enclosed is my check for another."
J. C. McG.
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"I recommend the Commander for what it is made for. It sure has been a great help to me. I want to thank you for what it has done. I might add it has helped me more than anything I have ever tried."
P. D.
Fort Knox, Ky.

Above are just a few of the many unsolicited testimonials for the Commander that we receive regularly. Originals of these and others are on file.

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My waist measure.....My height is.....
(Send string the size of waist if measuring tape is not available.)

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ADDRESS .....

CITY..... STATE.....

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REG. U. S. PAT. OFF.

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Front cover painting by H. W. McCauley, illustrating a scene from "Carbon-Copy Killer"
Back cover painting by James Settles featuring the "Warship Of Mars"
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Volume 17 Number 7

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★ **The Midnight Assignation,** by **QUEVEDO:** A sly Lothario, bound for his lady's bedroom, falls into the clutches of the law.

★ **Forbidden Sweets,** A **BARON MUNCHAUSEN** Tale: The Baron's attempt to reform an empire upsets the love life of Miss Kilmariska.

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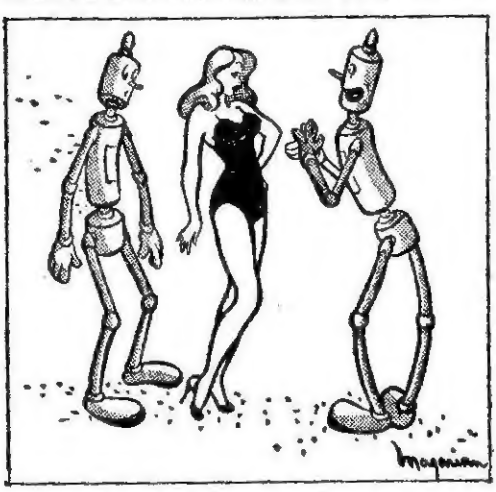
The OBSERVATORY by THE Editor

THIS month your editor is going to ask you to help him out on an experiment. It's all intended to improve the magazine, and to give you real entertainment. So that's where you help us: you write in and tell us what you think of the cover story this month "Carbon-copy Killer" by Alexander Blade. If it entertains you, and you think you'd like to see more of this type of story, tell us, and we'll see that you get it.

IN order to explain just what this new type story is, we'll have to explain that many of you readers have repeatedly asked us for something like it, and have even suggested putting out a new magazine devoted solely to that type of story. Of course this latter is impossible during war-time paper shortages, but we did think your requests were well-founded. So we called in Alexander Blade and said just what you have said, and which we now want you to confirm: "Alex, why don't you do us a good scientific detective story—a real amazing story with plenty of mystery in it? Laboratory sleuth stuff, and so on."

WELL, it so happened that H. W. McCauley had just brought in a new painting. Blade saw it and suggested basing his story on the painting. We agreed, and here it is.



"Why, it's beautiful! But what is it?"

THIS fact makes it two "stories behind the cover" this month. The second story is on us! If you'll look closely at the painting, you'll see that a particularly obnoxious creature is being held at bay by a particularly good-looking girl. Personally, we wouldn't like to have the girl shoot this obnoxious creature, because McCauley has painted your editor in an amazing likeness. And although the fact that the girl is once more posed by our lovely secretary isn't new any more, there's another fact about the cover. The only thing that bothers us is the identity of the unconscious young woman in the cover. McCauley just smiles when we ask him. And our wife wants to know, because she believes everything she sees.

DON WILCOX returns this month with a new novel-length story called "The Great Brain Panic." We assure you that you are going to find this to be an unusual story indeed. Don has been letting his imagination go, and recently we've gotten some truly remarkable material from his typewriter. You'll be seeing it regularly.

P. F. COSTELLO has done interplanetary stories before, so you know what to expect from his "Silver Raiders of Sirius" in this issue. Robert Fuqua did a very neat space ship illustration for the story, too.

ALTHOUGH Robert Moore Williams hasn't started on his way toward camp as yet, we are expecting any day to hear that he has—and we'll miss him extremely. One of his yarns appears this month. "Jimmy Dolan's Radio Ray" is another of those stories only Williams seems to be able to master; about more youthful heroes than usual—and this time he adds another gem to his record of achievement.

WHEN you "Meet the Author" this month, you'll be introduced to Helmar Lewis, new to our pages, but certainly not new to a typewriter, nor to radio. He writes both for radio and for magazines, and his "The Man Who Lost His Face"

FOOT ITCH
ATHLETE'S FOOT

WHY TAKE CHANCES?

The germ that causes the disease is known as Tinea Trichophyton. It buries itself deep in the tissues of the skin and is very hard to kill. A test made shows it takes 15 minutes of boiling to destroy the germ, whereas, upon contact, laboratory tests show that H. F. will kill the germ Tinea Trichophyton within 15 seconds.

H. F. was developed solely for the purpose of relieving Athlete's Foot. It is a liquid that penetrates and dries quickly. You just paint the affected parts. H. F. gently peels the skin, which enables it to get to parasites which exist under the outer cuticle.

ITCHING OFTEN RELIEVED QUICKLY

As soon as you apply H. F. you may find that the itching is relieved. You should paint the infected part with H. F. every night and morning until your feet are better. Usually this takes from three to ten days.

H. F. should leave the skin soft and smooth. You may marvel at the quick way it brings you relief. It costs you nothing to try, so if you are troubled with Athlete's Foot why wait a day longer?

H. F. SENT ON FREE TRIAL

Sign and mail the coupon, and a bottle of H. F. will be mailed you immediately. Don't send any money and don't pay the postman any money; don't pay anything any time unless H. F. is helping you. If it does help you, we know you will be glad to send us $1 for the bottle at the end of ten days. That's how much faith we have in H. F. Read, sign and mail the coupon today.

PAY NOTHING TILL RELIEVED

Send Coupon

At least 50% of the adult population of the United States are being attacked by the disease known as Athlete's Foot.

Usually the disease starts between the toes. Little watery blisters form, and the skin cracks and peels. After a while, the itching becomes intense, and you feel as though you would like to scratch off all the skin.

BEWARE OF IT SPREADING

Often the disease travels all over the bottom of the feet. The soles of your feet become red and swollen. The skin also cracks and peels, and the itching becomes worse and worse.

Get relief from this disease as quickly as possible, because it is both contagious and infectious; it may go to your hands or even to the under arm or crotch of the legs.

GORE PRODUCTS, Inc.
801 Perdido St., New Orleans, La.

Please send me immediately a bottle of H. F. for foot trouble as described above. I agree to use it according to directions. If at the end of 10 days my feet are getting better, I will send you $1. If I am not entirely satisfied, I will return the unused portion of the bottle to you within 15 days from the time I receive it.

NAME.....

ADDRESS.....

CITY.....STATE.....

(Continued from page 6)

is a story based on something that actually happened to him in a radio broadcasting studio—that is, up to a certain point. So don't take us too literally when the climax of the story hits you in the face!

FESTUS PRAGNELL deserts his character, Don Hargreaves, for the second time in his career with his "Collision in Space." This one's a good interplanetary story too, and you'll find it very entertaining.

A. R. McKENZIE presents Juggernaut Jones as a commando this month. And the illustration is by Julian. We say Julian and not Krupa because be it known from this day forward that our favorite artist will be known solely by the single name "Julian." He doesn't explain why he intends to sign his work that way, but there it is. Incidentally, Julian's illustration is a corker, and we've got some coming up that will warm your hearts in the future. Seems like the good old days.

H. W. McCAULEY, once removed from us by the army, and then returned, is removed again, this time by a job with a large advertising agency which is demanding so much of his time that paintings for us will be few and far between. We only hope we can prevail upon him to work nights for us occasionally.

HOWARD BROWNE'S cave man novel is now available in book form, and AMAZING STORIES chalks up its first serial to be republished in that form since Ziff-Davis took the reins. We have a hunch it won't be the last. We have it on reliable sources that caveman Tharn is due to appear in our pages in the future in another serial-to-become-a-book. Which strikes us as good news.

BY the way, Tharn has nothing on his creator for muscle! Howard Browne, bowling in Chicago under the banner of the Ziff-Davis team, knocked over the maples for a 268 game and a 605 series!

LIEUTENANT JACK WEST, whose real name is Jerome K. Westerfeld, recently took a bride. He was married on March 21, at Bay City, Texas. His bride is the former Joan Enright. Good luck to you both! And Joan, we weren't kidding when we said what we said the last time you visited us! Also, we're tickled to know you took us so literally. We're happy to know that although the army took a swell editor and writer away from us, he now has a firm hand to guide him back here when it's all over over there!

DAVID WRIGHT O'BRIEN, headed for the air force, wound up in a barracks quarantined for scarlet fever. Poor Dave! And to think of the stories he could have written with all that time on his hands!

ARTHUR T. HARRIS, also in the armed forces, writes that he is about ready to do to Hitler what ought to be done to Hitler. The last time Art was up to see us, in uniform, he took us to breakfast and forced us to eat two full orders because he believed the civilian population was slowly starving to death. We finally convinced him this wasn't true, but he compromised by predicting some other awful fate would befall us—like marrying a "corny" brunette. It seems Art is from Atlantic City, where corn is terribly "earthy." Incidentally, our brunette wife is planning a lovely breakfast for Arthur T. Harris. She figures *he'll* be hungry when he gets back from giving Hitler what for. The welcome mat is out, Art, and don't say we didn't warn you!

ACCORDING to the United States Naval Observatory, the number of stars visible to the naked eye is between six and seven thousand. This includes all the stars visible to the unaided eye from all points on the earth.

Not more than two thousand or two thousand five hundred can ever be seen with the naked eye from any one point, since the other lucid stars are either below the horizon or are so close to it that they cannot be seen.

Those stars that can be seen with the naked eye are called *lucid* to distinguish them from *telescopic* stars. Millions of stars can be seen, of course, with the aid of powerful telescopes. So far, there seems to be no sign of any limit to the number of stars in the celestial.

The Smithsonian Institute, however, states that the total number of stars is estimated by astronomers at thirty billions.

How can such an estimate be made? One may wonder. The first step in attaining this estimate is the elimination of the idea that the number of stars is infinite. This is accomplished, according to the Smithsonian Institute, by the remarkable argument that if the stars were infinite in number and if space is infinite in extension, the whole vault of the heavens would glow as brightly as the sun. This, of course, is mere speculation.

Astronomers, you see, get headaches, too.

FOR many years the shippers of holly, that ever present emblem of the Yuletide season, have been suffering a large loss in sales value since most of the leaves of the holly fall off while it is

(Concluded on page 10)

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(Not sent outside of U. S. A.—Payment with order)

(Concluded from page 8)

being shipped from the Pacific Northwest to market. But science and research in the form of Dr. J. A. Milfrath and Prof. Henry Hartman of Oregon State College have come to the rescue. They found that if the holly branches and wreaths are either sprayed with or dipped into a solution of alpha naphthalene acetic acid the leaves will not fall off. In fact, branches treated with .0170 solution will hold their leaves as long as two weeks, even though exposed to ethylene gas, which can make every leaf fall away from an untreated branch in only two days.

This process is not only beneficial to the shippers of holly, but is also a blessing to home-owners throughout the land who can enjoy their holly for a longer period before the leaves begin to fall.

FLIES, you know, walk on ceilings with the greatest of ease. Humans, of course, are incapable of performing these upside-down tactics. How, then, can flies walk on ceilings? What body structure gives them this acrobatic advantage?

According to the United States Bureau of Entomology, the foot of the housefly contains two curved lateral claws between which is a pair of membranous pads. These pads are covered below with innumerable closely set hairs which secrete a small amount of viscid fluid. This liquid enables the fly to walk upside down on a smooth surface.

Some authorities, however, deny that the fluid secreted by the foot hairs is sticky. They say the fly is enabled to cling to the smooth surface by capillary adhesion—the molecular attraction between the liquid and a solid body.

When a fly seems to be washing itself, it is not really cleaning its body, as commonly supposed, but its feet.

And there seems to be no truth in the belief, formerly quite common, that the fly removes the air from under its feet by means of suckers through the hairs and that the atmospheric pressure holds it against the smooth surface on which it is walking.

IF you're in the market for a diamond for the one and only, you probably feel that nothing is too good for her. But don't be downhearted when you learn that the largest cut diamond in the world is not available, for it would never fit on her finger anyway. This beauty is a pendant cut brilliant weighing 530 carats. It is called the "Star of Africa" and now sets in the scepter of the British regalia.

The stone from which it was cut was discovered in 1905 and weighed the astounding sum of 3034 carats. It was purchased by the Transvaal government for almost a million dollars and presented as a birthday gift to King Edward VII. In its initial cleavage it was cut into three parts in order to avoid a flaw in its center. From one of those thirds the "Star of Africa" was obtained. Another section yielded a magnificent square brilliant weighing 317 carats, which now is set in the British crown. Seven other major stones varying in weight from 94 to 4½ carats were derived from the same source and now are among the crown jewels of Great Britain.

YOU'VE probably heard some "old timer" tell you about "that dreary winter," or "that torrent of rain," 'way back when. And you've heard them tell stories of "hailstones as big as your fist."

How large were the largest hailstones on record? Here's your chance to argue with the old boys.

The maximum size of hailstones is not known positively for the simple reason that trained observers are not always present to measure them when they fall. Hailstones larger than one's fist and weighing more than a pound have been reported several times on good authority, according to the United States Weather Bureau.

On one occasion, during a storm in Natal in 1874, hailstones fell which weighed a pound and a half. They passed through a corrugated iron roof as if it had been made of paper!

In February, 1874, another "true tall story"—"tall" for its unusual quality only—originated. In New South Wales, Australia, hailstones fourteen inches in circumference fell.

At Cazoria, Spain, on June 15, 1829, houses were crushed under blocks of ice, some of which were said to have weighed four and a half pounds.

But, of course, these reports, like all accounts dating back many years, should be taken with a grain of salt. The untrained observer often exaggerates unconsciously. Possibly some of the reports refer to cases where masses of ice resulted from the coalescence of a number of smaller hailstones lying closely packed together on the ground.

The story by the "old timers," of course, *should* be taken with a grain of salt.

A FEW closing remarks, and we'll close up the observatory for this month. Remember, you readers, give us the lowdown on that scientific detective story. If you like it, tell us so. If you don't . . . well, tell us that too. We have a hunch you'll go for it. We did. We'll be back next month with another bunch of fine stories and a few more interesting observations. Until then, as a certain army colonel once told us, keep your nose clean! And we *won't* tell why!

Rap.

I Have Lived Before--

Says Aged Lama

CAN WE RECOLLECT OUR PAST LIVES?

IS THERE a strange familiarity about people you have met for the first time? Do scenes and places you have never visited haunt your memory? Are these proof that the personality—an immaterial substance—can survive all earthly changes *and return?* How many times have you seemed a *stranger to yourself*—possessed of moods and temperaments that were not your own?

Prejudices, fears, and superstitions have denied millions of men and women a fair and intelligent insight into these *yesterdays of their lives.* But in the enigmatic East, along the waters of the once sacred Nile, and in the heights of the Himalayas, man began a serious search beyond this veil of today. For centuries, behind monastery walls and in secret grottoes, certain men explored *the memory of the soul.* Liberating their consciousness from the physical world to which it is ordinarily bound, these investigators went on *mystical* journeys into celestial realms. They have expressed their experiences in simple teachings. They have disclosed whereby man can glean the true nature of self and find a *royal road* to peace of mind and resourceful living.

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CARBON-COPY KILLER

By ALEXANDER BLADE

THE taxi swung out of the heavy swirl of early evening traffic and shuddered to a stop before a large, brown-stone residence set well back from the street.

The driver leaned out to open the cab's rear door.

"This is it, lady," he announced.

A slender, dark-haired girl, still in her early twenties, stepped out with careless disregard for her upswirling skirt. The driver stared frankly and mentally whistled his appreciation.

She opened her bag while he belatedly released the meter flag.

"That'll be a dollar-fifteen, lady."

She hesitated, her hand still within the purse.

"Are you sure?" she asked doubtfully. "That seems awfully high."

He scowled. One of them kind of dames, huh.

"There's the meter, lady. Look for yourself."

She bent to scan the figures behind the glass panel, the tonneau light illuminating the planes and curves of her lovely face.

"Yes," she said with sudden disinterest. "That is correct."

She took two ones from a slender sheaf of bills and thrust them into his hand. Then she turned and strode briskly up the walk toward the brown-stone house.

The driver looked from the bills to the retreating figure and back to the bills again.

"Of all the screwy dames!" he muttered, and trod on the starter . . .

The girl mounted the three stone steps to the heavily shadowed porch and rang the bell.

After a moment the porch-light came on and the door swung open under the hand of a tall, slender man in an unpressed tweed suit.

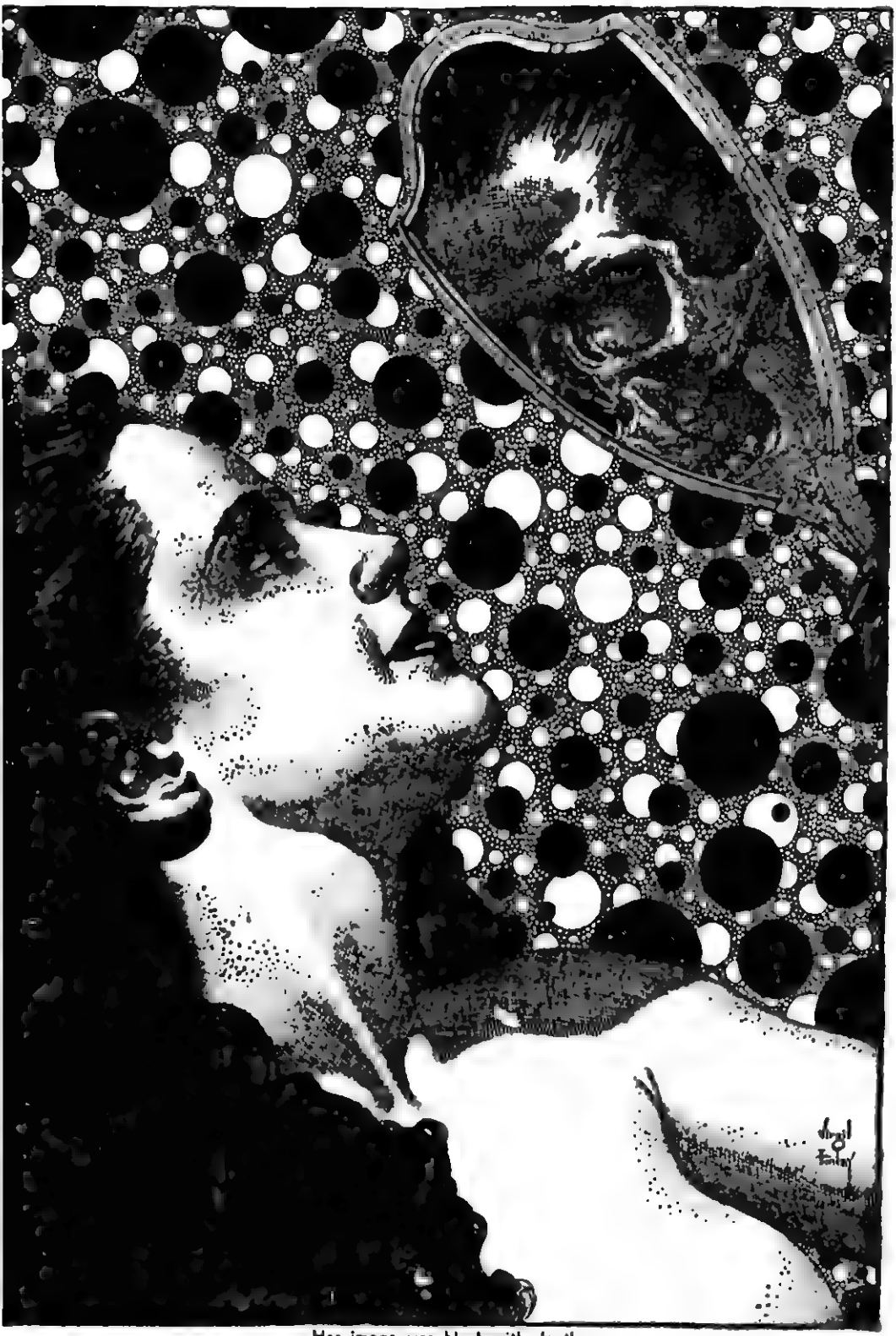
"Alice!" he exclaimed, pleasure and surprise in his voice. "How nice! Won't you come in?"

She brushed past him into the wide hall, removed her coat and hat and handed them to him—all without saying a word.

The man came back from the closet where he had placed her wraps.

"Come into the library, Alice," he said warmly, taking her arm. "It's good to see you again, darling. I've —well, I've missed you."

Carbon is the basic element of all life; but in this amazing murder, it was the foundation and clue to death itself!



Her image was black with death . . .

Within the book-lined room, with its tremendous fireplace, he gestured to one of the leather chairs.

"Sit there, Alice, where I can look at you."

The scholarly stoop of his shoulders was accentuated as he bent to refill his pipe from a humidor next to a reading lamp. An open book lay face down on the arm of a lounge chair, where the man had evidently placed it before answering the bell.

"Naturally," he began, as he replaced the humidor cover and turned to face his visitor, "I'm hoping this means you've recon—"

THE words faltered to a complete stop and troubled uncertainty dawned in his mild brown eyes. For the girl was not occupying the chair he had indicated; instead, she had moved silently almost to within arm's length of him.

He said, "Alice?" uncertainly.

Her face was expressionless. The dark eyes were completely devoid of emotion. The flush of color in her cheeks seemed blotchy, unnatural.

"Drew Massey," she said. The words lacked the slightest inflection. "Drew Massey. I have come to kill you!"

The hand containing the pipe fell slowly to his side.

"Alice!" he cried hoarsely. "What's come over you? You don't know what you're saying!"

She seemed not to have heard him.

"Drew Massey," she repeated in the same dull, deadly tone. And then she acted.

Suddenly her hands shot out, to close their fingers about the throat of the bewildered man. So savage was the unexpected attack, so powerful the muscles behind it, that Drew Massey was literally swept from his feet.

He fought back—struggled to loosen those terrible fingers. But Drew Massey had spent most of his life with books and papers; there was no fount of physical strength he could call upon to resist, successfully, the insane power rapidly taking his life.

And, finally, when the body in the unpressed tweeds was limp and still with death, the girl took her hands from the bruised throat and rose to her feet. There was still the lack of facial expression as her emotionless eyes flicked over the corpse that minutes before had been Drew Massey.

What followed was the last thing to be expected from one who had committed murder. With deft, unfaltering fingers, she loosed a coil of her black, unbobbed hair, separated a few single strands and, with a sharp movement, tore them from her head. Then she bent, and without squeamishness, placed the black threads in the dead hand and folded the already stiffening fingers tightly about them.

This done, she picked up the dead man's pipe from where it had fallen, pressed the finger-tips of her right hand against the polished bowl, then placed it carefully on the nearby lamp table. Crossing the room to the hallway door, she closed her hand tightly about its knob. For a moment she stood there, lost in thought; then she turned and went back to the body. With calm deliberateness she tore an ornamental pearl button from the bodice of her white blouse and placed it beside one of the dead man's legs, partially concealing it by the folds of a trouser-leg.

The telephone on a table near the door caught her eye. She crossed to it, opened a drawer in the table and took out an ornate indexed telephone pad. Setting the indicator at the letter "D", she pressed a release button, memorized

a number and lifted the telephone receiver.

"Wrightwood 7990 . . . Hello; Dwight's Food Shop? I want to place an order. Will you deliver it, please? . . . Send four bottles of plain seltzer, three loaves of white bread, the large size; and ten cents worth of boiled ham, to 2217 Haynes Boulevard . . . That is correct: ten cents worth . . . Thank you. Send it immediately, please."

She replaced the receiver and went out into the hall. A settee along one wall caught her eye and she sat down to wait.

DURING the fifteen minutes that followed, the dark-haired, slender young woman betrayed no indication of impatience or nervousness. And when feet sounded on the porch outside and the door-bell rang sharply, she stood up quietly, snapped on both the hall- and porch-lights and opened the door.

A brief conversation passed between the delivery boy and her; she paid for the purchases and accepted a heavily laden brown paper bag, then closed the door.

She emptied the bag, placing the contents, one by one, on the polished surface of the hall table. That done, she took up her purse, got into her coat and hat after taking them from the hall closet, and went back into the study.

Drew Massey's body lay twisted in death beside the lamp table, but the girl appeared to have forgotten it. With firm, unhurried steps, she crossed to French doors opening onto the lawn. She turned the handle on one of the doors, pressed her naked palm against one of the glass panes until the door had opened sufficiently for her to pass through.

A row of bushes stood between the house, at this point, and a driveway leading to a two-car garage at the rear.

The woman hesitated a moment, then stepped out, one pump-shod foot sinking into the soft earth about the bushes as she forced her way through the foliage to reach the closely clipped lawn.

A middle-aged couple was passing the mouth of the driveway as the girl stepped onto the sidewalk. In the act of passing them, the heel of her shoe apparently struck against a crack in the cement underfoot, and she lurched heavily against the man.

"I'm so sorry," she gasped. "That was clumsy of me."

The man smiled.

"Glad to have been of service."

His wife sniffed audibly after the girl had gone on.

"If you ask me, George Putnam, that girl was drunk."

"Now, Mary, that's no way to talk. She tripped; it could have happened to anyone."

"That's right; stick up for her just because she had a pretty face. And the way you simpered at her; no fool like an old fool, I always say."

Her shrewish tongue clattered on as they passed the walk leading to the brownstone house—the house where a man lay dead, with the imprint of savage fingers on his throat.

CHAPTER II

"BUT, Anthony," Marion Trent protested, "I simply must leave. I've got to be at the plant at eight tomorrow morning, and I'll need my sleep."

The short, rotund little man in the chair across from her shrugged resignedly.

"Then I won't try to keep you. It's just that I'm supposed to be your favorite uncle, yet the one time in months that you have dinner at my home, you

have to run away before ten o'clock."

Marion shook back the shoulder-length wealth of reddish-brown hair that framed the oval of her face. She was taller than the average woman, with long symmetrical legs and a perfectly proportioned figure, strikingly set off by a sea-green evening gown.

"We'll make it again, soon, Anthony," she said. "And I'd think you'd welcome the chance to get some sleep, yourself. I've always understood that police commissioners were like doctors: subject to being called at all hours of the night."

Anthony Ellis smiled.

"True; but they'd cheerfully pass up sleep for a chance to talk to a lovely girl!"

"If you were to see me at the plant, in coveralls and with oil and grease and carbon on my face, you'd retract that word beautiful," Marion laughed, her hazel eyes sparkling. "Sometimes I'm tempted to feel sorry that I picked organic chemistry as a career!"

"Pardon me, sir." Fellows, Ellis' butler, was standing in the doorway. "Police Lieutenant Lacey is on the wire."

The round-bodied little commissioner struggled to his feet.

"All right, Fellows; I'll take it in here."

He crossed to a phone on the library desk, touched the cut-in button and scooped up the receiver.

"This is Commissioner Ellis, Lieutenant. What's on your mind? . . . No! Massey, eh? . . . Certainly I'm coming down! This is going to raise an awful stink, Lacey; there mustn't be any bungling . . . Of course . . . Yes; right away. Goodbye."

He replaced the receiver and turned back to his niece. She had risen from her chair while Ellis was speaking, and there was alarm in her expression.

"Anthony!" she said quickly. "I heard you say Massey. Do you mean *Drew* Massey? Has something . . ."

"Yes," Ellis said shortly. "It's Drew Massey — and something has. He's dead!"

The color drained from Marion Trent's cheeks.

"I was afraid of that," she whispered. "Poor Alice!"

Ellis was staring at her with narrowed eyes.

"What do you mean—'poor Alice'? What do you know about this, Marion?"

"A great deal," she admitted lifelessly. "In a way, I suppose, it's my fault."

"*Your* fault?"

"Yes. I introduced them; even helped to make them fall in love with each other. Drew Massey, you know, is a trustee for Northeastern University. I met him while I was doing post-graduate work in organic chemistry there, under Professor Munro Miller. My best friend, Alice Bailey, has a clerical position at the university. I introduced her to Drew and, despite the difference in their ages, they were attracted to each other. They were at the point of announcing their engagement; then Alice stopped seeing him."

"Why?"

"I don't know; I don't think anyone knows—except Alice, of course. Drew took it awfully hard—first time he'd ever been in love, and all that."

"ONE moment," Ellis interrupted. "She broke it up?"

"That's right. And she'll blame herself for—"

"Then why," Ellis interrupted, following his own line of thought, "would she want to murder him?"

There was a moment of shocked silence. Ellis came out of his reverie

in time to see the incredulity and horror in her face.

"Murder?" Marion repeated. "You mean somebody killed him? It wasn't suicide?"

The commissioner showed his amazement.

"Who said anything about suicide? Alice, you know more about this than you're telling!"

The young woman shook her head as though to clear her thoughts.

"No, Anthony," she said. "Nothing that has to do with murder, anyway. But I *do* know that I'm going with you!"

"Now, wait, Alice! This is police business. I can't have you getting underfoot, maybe messing up vital clues—and—"

"Oh, stop it, Anthony," Marion sighed. "I'm not *that* giddy! I've *got* to be in on this; Drew Massey is —was a very good friend of mine. And then there's Alice . . ."

Her uncle waited for her to continue; instead she bit her lip.

"Have Fellows get my wraps, too, Anthony," she said evenly. "We'd better hurry."

They took a cab at the corner, and twenty minutes later drew up in front of the brown-stone residence of the late Drew Massey. Two police cars were already parked at the curb, and a uniformed officer was visible under the porch-light.

Ellis paid off the visibly curious cab driver, and he and Marion Trent mounted the steps to the porch.

The patrolman saluted.

"Good evening, Commissioner. The lieutenant's inside." He eyed the girl in the evening gown and velvet wrap with respectful interest.

They found Lieutenant Lacey standing in the center of the library, watching a member of the Homicide detail take pictures of the sprawled body. Lacey was a ponderous man of fifty, with shaggy, grizzled hair and a constantly offended expression.

Marion Trent kept her gaze away from the dead man. She moved blindly over to the fireplace and stared unseeingly at the two unlighted logs within the brick recess.

There was really no point to her accompanying Anthony Ellis here, she told herself. It was only that Drew had been her friend . . . No! That wasn't the reason; why shouldn't she face the truth? She was afraid that in some way Alice Bailey was mixed up in Drew's murder! No one else could possibly have any reason for slaying the inoffensive, scholarly recluse whose only activity outside the world of his books and his writing, was that of trustee on the board of Northeastern University. Of course the only reason she connected Alice with the murder was that the black-haired girl had broken with Drew.

ANTHONY ELLIS and the lieutenant were kneeling beside the corpse, their heads together over something the police officer had just removed from the dead man's right hand. They got to their feet, still discussing their find in tones too low to be audible to the others in the room.

Marion took notice of them as they came toward her. Her uncle was frowning.

"Marion," he said, "you know Lacey, don't you?"

His niece nodded briefly.

"Yes. How do you do, Lieutenant?"

The huge man grunted an acknowledgment, then got down to the business at hand.

"Miss Trent, you knew Massey?"

"Yes."

"Know anyone who'd have reason to

kill him?"

"I— No."

"Your uncle tells me you're a friend of Massey's fiancee," Lacey persisted.

"She wasn't his fiancee," Marion corrected firmly.

"I understand that. But she was going to be, wasn't she?"

"At one time—yes."

"What's her name?"

Marion hesitated.

"Is it necessary to drag her into this, Lieutenant?"

"This is murder, Miss Trent," Lacey said briefly.

"Her name is Alice Bailey," the girl said reluctantly.

"Where does she live?"

"At the Fleetwood Apartments."

"Ummm." The lieutenant rubbed his blue jowls reflectively. "Tell me, Miss Trent: what color is this Bailey girl's hair?"

"Why—why, black. She's quite dark."

Lacey brought up the clenched hand he had been holding at his side and opened the fingers. In his palm were several long, silken, very black single strands of hair.

"Would you say," he asked softly, "that Miss Bailey's hair is the same shade as these?"

The girl eyed the threads warily. "Perhaps. Many people have black hair. Is it important?"

Lacey picked up the strands between the first two fingers of his other hand.

"When you consider," he said quietly, "that these were found clenched in the dead man's hand—they're damned important!"

Strangely, the words seemed to mean nothing to Marion Trent. Instead, she was staring wide-eyed at the open palm that had held the long, black hairs.

She reached out abruptly and caught hold of that hand and brought it closer to her eyes.

"Lieutenant!" she said sharply. "Look. What are those faint black lines on the skin of your palm?"

Lacey, bewildered, scanned the surface of his mammoth paw.

"I don't — Yeah . . . them. Pencil marks, I guess. But what's impor—"

Marion Trent shook her head impatiently.

"Let me have one of those hairs for a moment, Lieutenant."

Lacey started a heavy protest.

"Now wait, Miss Trent. These are evid—"

"Please!" she interrupted curtly. "I'm not going to hurt it."

She took one of the soft strands, closed thumb and forefinger tips about it, and drew its full length slowly between them. Then she held out the tips for the two men to see.

A clearly visible black line had been left on each!

LACEY and Commissioner Ellis stared open-mouthed at the marks and then at each other.

"Strangest thing I ever heard of," Ellis muttered.

"Hey, Lieutenant!" The call came from one of the Homicide detail, who was bending over a straight-stemmed briarwood pipe on a table near the corpse. "Come over here a minute, will you?"

Marion Trent, her revulsion forgotten, went with the two men.

"Find something, Monahan?" the lieutenant asked.

A finger-print kit, opened, stood on the cushioned easy chair. Monahan was holding a glass tube of grayish powder in one hand. With the other he handed Lacey a magnifying lens.

"Take a look at the bowl of that pipe," he suggested to his superior.

Lacey bent, careful not to touch

the pipe and peered at its surface through the glass.

"A perfect set of prints!" he exulted. "Woman's hand, I'd say; and clear as a bell! You did a nice job of bringing it out, Monahan; the powder took hold perfectly."

"That," the fingerprint expert said slowly, "is just it. *I didn't dust that print!*"

Lacey's jaw sagged.

"But you must have, man! These ridges show it. They're as black as your hat!"

"Maybe one of the other men . . ." Ellis began.

Monahan looked offended.

"I'm the only 'print man on this job, sir."

Marion Trent pushed past the lieutenant, took the glass from his limp hand and bent over the pipe. After a brief glance, and before anyone could stop her, she extended a shapely, enamel-tipped finger and rubbed at a minute portion of the stem.

With a snarl of protest, Lacey caught her wrist and jerked it back.

"Now, look here, Miss Trent. You're tampering with evidence. Commissioner, I'm not going to be responsible for—"

"Oh, be quiet, Lieutenant!" the young woman told him impatiently. "I only touched one of the prints."

She looked down at the offending finger, then held it out wordlessly for the others to see.

A tiny black smudge marred the whiteness of its skin!

The silence that followed was broken by Lacey.

"I knew damn well *somebody* developed that print! If this ain't the screw—"

"Wait, Lieutenant." The tall, slender girl in the sea-green gown was shaking her head. "This isn't fingerprint powder. Unless you're suggesting somebody put such powder on the hairs you found."

Lacey gave up.

"See if you can find more of these prints, Monahan," he instructed, "while I have these photographed."

The commissioner and his niece stepped to one side, while flash bulbs exploded soundlessly to preserve the prints on the pipe and the exact position of the corpse and its surroundings.

"I don't see how a *woman* could have killed Massey," murmured Ellis thoughtfully.

Marion's head came up with startled interest.

"Why do you say that, Anthony?"

"Why, whoever heard of a woman choking a healthy *man* to death? Not strong enough. Unless it was an Amazon of some kind."

A MAN entered the library through the French doors at the far end of the room. He was carrying a white object carefully in one hand.

"Here you are, Lieutenant," he called cheerfully. "Found the clearest print of a shoe you could want, in the soft earth around the bushes right outside those glass doors. Took a perfect cast."

Lacey and the pudgy little commissioner bent over the plaster cast. The original print clearly had been made by a woman's oxford. Evidently the shoe that left it was not new; the heel print showed considerable wear on one side, while a slight elevation in the plaster reproduction of the sole indicated the leather of the shoe had worn through the initial thickness.

The lieutenant made no effort to hide his elation.

"Talk about your careless dames!" he chortled. "Now if we can find the owner of that shoe, we'll have the

killer. And I've got a pretty good idea where to look for her!"

Monahan came back into the room, then, shaking his head.

"Found plenty of prints, Chief," he told Lacey. "On doorknobs, tables—even on the stuff from the grocery that's on the table in the hall. All of 'em belong to the same hand—a girl's! —*and all of 'em are black!*"

THERE was a sudden commotion from the entrance hall, and a policeman in uniform came into the room. With him was a visibly frightened boy in his late 'teens.

"Gleason reporting, Lieutenant," the man in uniform said formally. "Like you told me, I went over to that food shop on that bill with the groceries. This kid, here, says he delivered them."

The massive lieutenant towered over the scared youngster.

"What's your name, bud?" he asked gruffly.

"Lumpkin, sir—Henry Lumpkin."

"Where do you work?"

"Dwight's Food Shop, sir. It's . . on Broad Street."

"Umm. You make a delivery at this address today?"

"Yes, sir. I did. About 7:30 this evening."

"What did you bring?"

The boy thought for a moment.

"Well, some seltzer water, three loaves of bread and ten cents worth of ham—boiled ham. Seemed kind of funny, too—"

Lacey's ears seemed to twitch like those of a dog that has struck a scent.

"What seemed funny?" he demanded.

"Well," the boy said slowly, "why would anybody want *three* loaves of bread and only *ten* cents worth of meat? Sounds like they was going to make drug store sandwiches!"

He essayed a weak chuckle, that ended immediately under Lacey's baleful eye.

"Who accepted the package from you?" the lieutenant asked.

"A girl. I seen her here once two, three months ago before, too. She's awful pretty."

"Know her name?" Lacey demanded, after shooting a triumphant glance at Ellis and the girl.

"No, sir."

"All right, Henry. I want you to come along with us."

"But, gee, mister, I ain't done nothing! I—"

"I know you haven't. We're going calling on a young lady, Henry. And if she's the girl you saw here tonight; if she's the one that took those groceries from you—then I want you to say so right in front of her. Will you?"

The boy looked a little doubtful.

"If it's really her, I will," he said.

"Oh, I wouldn't want you to, otherwise. But if she's the one, you wait until I say to you: 'Henry, did you ever see this woman before?' Then you tell the whole story. Understand?"

Marion Trent interrupted.

"Excuse me, Lieutenant Lacey, but where are we going?"

"Over to the Fleetwood Apartments," Lacey said smugly. "To call on Miss Alice Bailey!"

CHAPTER III

THE Fleetwood was a modest apartment building that provided one-room kitchenettes complete with furnishings, gas, lights, and maid service for a moderate monthly rental.

Marion Trent, her uncle, Lieutenant Lacey, and young Lumpkin entered the small foyer. The officer ran his finger down the line of buttons until he found one opposite a card marked *Bailey*.

There was no immediate answer to his ring; and he was on the point of jabbing the button a second time, when a listless voice came down the tube.

"Yes?"

"Miss Bailey?" bellowed the burly lieutenant.

"Yes."

"My name's Lacey," rumbled the officer. "From Headquarters. Commissioner Ellis and Miss Trent are with me. May we come up?"

In response, the buzzer on the inner door sounded. The group filed through and entered the small elevator, to be lifted haltingly to the fourth floor.

Half-way down the narrow hall, a door stood open and a young woman in a flowered silken house-coat was waiting for them.

"Hi, Marion; hello, Mr. Ellis," she said in flat, weary tones. Her dark, dull eyes regarded the lieutenant and young Lumpkin questioningly.

"It's all right, Alice," Marion said soothingly. "This is Lieutenant Lacey. He wants to ask you a few questions."

The dark-haired girl drew the silken wrap closer around her shapely figure and stepped aside to let them enter.

"The place is a mess," she confessed, closing the door. "I wasn't expecting visitors."

The in-a-door bed was down and the blanket and pillow were rumpled. With a murmured apology Alice Bailey straightened the bed-clothes hurriedly, restored the bed to an upright position, and swung it out of sight.

"Sorry if we woke you," Lacey growled from his chair. "But this couldn't wait."

Alice Bailey slumped down next to Marion on the couch and leaned her head tiredly against the padded back.

"*What* couldn't wait?" she asked. She didn't sound particularly interested.

The lieutenant leaned forward.

"Miss Bailey, you are acquainted with Drew Massey?"

Surprise put a spark in her eyes.

"Why, yes; quite well."

"See him lately?"

"Not—not recently. About two weeks ago, I guess. Goodness, don't tell me *he's* done something wrong!"

Lacey ignored the remark. He said, "You were engaged to him at one time, weren't you?"

Alice shook her head.

"Nothing as definite as that."

"But he was in love with you?" the lieutenant persisted.

"Yes."

"And you with him?"

"I—I thought so . . . at first. Then I decided I wasn't."

"Is that the reason you stopped seeing him?"

"Yes . . . I'd like to know why you're asking these personal questions, Lieutenant."

"I'll explain that in just a moment, Miss Bailey," Lacey said politely. "First, though, I'd like you to tell me where you were today between the hours of, say, six and eight-thirty—this evening, that is."

THE black-haired girl was staring at him oddly, and the pallor of her clear skin increased perceptibly. There was a sudden, electric silence in the room.

Her eyes fell under the man's direct gaze and she began to twist the crumpled handkerchief in her hands.

"It's strange that you should ask me that," she murmured. "You see, I don't remember where I was!"

Angry color darkened the officer's face.

"So you're going to use that line, hunh? Then maybe *I* can tell *you!*"

"Just a moment, Lieutenant," inter-

rupted Marion Trent. She put an arm about the other girl's shoulders protectingly.

"Alice," she said softly, "we've been friends for a long time. You can trust me. Try hard to remember where you were and what you were doing earlier this evening. It's important, Alice; awfully important."

Alice Bailey sighed.

"Oh, I've tried to; even before all of you came up here.

"It's all so strange," she continued, almost as if she were thinking aloud. "A little after three this afternoon, I was typing out some examination questions for Professor Miller. I was using one of the little offices at the end of the corridor away from the other offices and had the door closed. Someone had placed a carafe of water and a glass on my desk while I was out to lunch about one o'clock, and I drank some of it.

"Right after that, I began to get awfully sleepy. I tried to get up, to walk around a bit to dispel the drowsy feeling, but I—I couldn't. My head began to reel and I was suddenly very weak. I put my head down on the desk and that's the last thing I remember.

"The next thing I knew, I was walking along High Street, less than a block from my apartment! It was quite dark and I knew it must be very late. But whether I'd been walking around for hours, or if I'd left that office only a few minutes before, I've no way of knowing. You see, the Administration Building is on High Street and only four blocks from these apartments."

Lieutenant Lacey's expression betrayed his scepticism.

"Maybe you noticed the time when you entered the apartment?"

The black-haired girl nodded.

"Yes; it was a few minutes after ten."

"And that's all you know?"

"Yes," Alice Bailey said, "that's all. I still felt awfully tired and weak, and my head ached terribly. I came directly to the apartment, took a cool shower and washed my hair, and had just crawled into bed when you rang."

In the strange silence that followed, she looked up to find the eyes of the two men and Marion Trent fixed on her in sudden shocked awareness of what those last words signified.

Lacey was the first to speak.

"So you washed your hair, eh? Excuse me, Miss Bailey."

BEFORE the amazed girl could protest, he reached out, took hold of several strands of the black cloud of bobbed hair and drew his thumb and forefinger firmly along their length.

The bewildered girl shrank away as he released the black threads. Both Marion and her uncle bent forward to observe the result.

Silently, Lacey held out his hand for them to see. The tips of both thumb and finger showed no black marks!

"Henry," the lieutenant said, turning to the youngster who had remained standing in the background while the others were talking, "tell me, did you ever see this young lady before?"

"Yes, sir, I did," the boy said promptly.

"When?"

"Well, twice. The first time was when I made a delivery two months ago to the same house I saw her at tonight."

"You saw her again, tonight?"

"Yes, sir."

"Where?"

"At 2217 Haynes Boulevard."

Alice Bailey, who had been listening to the exchange with puzzled interest, stiffened with sudden shock upon hearing that last answer.

"You mean," she said blankly, "that I was at Drew Massey's home earlier

today?"

"So it appears, Miss Bailey," the lieutenant observed drily. "And just to prevent any possible misunderstanding, I'll have to ask you to accompany me down to Headquarters for further investigation."

Slowly the girl's dark eyes went over the circle of faces about her, noting the expressions of severity, compassion, and curiosity.

Her voice was a hoarse, dry whisper.

"What am I being accused of?"

"Nothing—yet," Lacey replied cautiously.

"Then why are you asking me to go with you to Headquarters?"

"Because it appears certain that you were at the home of Drew Massey about 7:30 this evening."

She wet her lips.

"And . . ."

"And it was about that hour," the burly officer continued inexorably, "that Drew Massey was murdered!"

She closed her eyes, at that, and began to tremble.

"Then I . . . killed him. I—"

Marion Trent's hand closed on her arm.

"Stop it, Alice! You couldn't have done it. You had no reason to. There's been some horrible mistake—"

Alice Bailey took a deep, shuddering breath.

"Drew is dead, Marion. He was mur-murdered. Maybe I did it. I don't know. Don't you understand—*I can't remember* where *I was at 7:30 tonight!*"

CHAPTER IV

A YOUNG man in stained coveralls put his head through the doorway of the laboratory.

"Telephone, Miss Trent," he called.

Marion Trent looked up from the boiling contents of a retort suspended over a Bunsen burner.

"Thank you, Charley."

She turned off the burner, wiped her hands on a bit of waste and removed the chemical-spotted apron protecting her slack suit.

She took the call in one of the anterooms outside the laboratory. Her uncle's voice came over the wire.

"Afraid I've got rather bad news for you, Marion."

Her heart sank.

"You mean—about Alice?"

"Yes. The fingerprints on the pipe, the door-knobs, the bag of groceries and about every place else you can think of, are hers. Not only that; the police have found the cab driver who took her there last evening. She gave him a fairly good-sized tip after arguing over the fare. The police also turned up a married couple that lives a few doors down the street from Massey; they saw her leave the house. Both identified her."

"Anthony, I can't believe it! I've known Alice for a long time. She isn't capable of murdering anyone!"

"I know, Marion." Anthony Ellis' voice sounded regretful. "But there's even more. Lacey went over the office at the university in which Miss Bailey reported she was doing work for Professor Miller. In one of the closets was a dress of hers with one button torn off. That button was found under Drew Massey's body!"

"I don't care!" Marion cried. "She *couldn't*—"

"Another thing," Ellis went on doggedly, "they found the carafe on her desk—the one containing the water she said she drank. Lacey had the rest of it analyzed."

Marion gripped the receiver tightly.

"Well?"

"It was just ordinary water right out

of a tap—and just as pure!"

THE wire hummed softly in the silence that followed.

"Marion?"

"Yes, Anthony. I'm here. I don't know what to say."

"I'm sorry, dear. Nice people do some pretty horrible things, sometimes, under emotional stress."

"All right, Anthony," she said wearily. "Thanks for telling me all this."

She put back the receiver mechanically and returned to the laboratory, where she spent the next twenty minutes staring at the top of her work bench with unseeing eyes.

Then she made her decision. Chin set in determined lines, she went directly to her locker, changed into a street dress and sought out Jerry Lang, chief chemist for the Spartan Oil Company and the head of her department.

A half hour later, she was in a taxi, bound for the Administration Building at Northeastern University, a course of action clear in her mind.

Every clue pointed unwaveringly to Alice Bailey—clues that would be accepted without question by any jury. And every clue fitted perfectly into place to form the picture of her friend's guilt.

Yes, every clue—except one. The carbon film on the fingerprints and the strands of hair. Lieutenant Lacey, at a loss for an explanation of its presence, had chosen to ignore it entirely, which, Marion told herself bitterly, was a typical police attitude.

There was one man of her acquaintance who might be able to aid her in establishing the true significance of that c a r b o n film. That was Professor Munro Miller, dean of Organic Chemistry at Northeastern University and probably the world's foremost authority in that field. Because Alice Bailey had been employed by the university, and had handled a great deal of work for the professor himself, he undoubtedly would be glad to lend his aid to any effort that might clear her.

The cab drew up in front of the Administration Building. Marion got out, paid the driver, and entered the huge, sprawling white-stone building.

The girl at the information desk told her that the professor had no class for this hour and probably could be found in his basement laboratory. Marion, who had spent many hours in that laboratory while attending one of Miller's classes in organic chemistry, descended the wide steps to the basement, followed a long corridor to the building's rear and rapped on a heavy oaken door.

THE man who opened the door resembled in no way the popular conception of an erudite scientist. He was a good seven inches under six feet, with a thin, almost emaciated body and the unlined face of an adolescent. He was wearing a stained smock over baggy trousers and a wrinkled shirt.

His close-set, faded blue eyes regarded her absently and without recognition.

"Yes?"

"Don't you remember me, Professor Miller?" Marion asked, smiling.

He hesitated, striving to concentrate his attention on the task of recognizing his visitor.

"It's . . . Miss Trent, isn't it?" he said uncertainly.

"Yes. May I come in, Professor? I need your help in an extremely urgent matter."

"Why, of course!" He stepped aside for her to enter, closed the door gently and led her to a chair in one corner of the laboratory. "I'm always glad to help my students with their problems."

"A former s t u d e n t, this time," Marion smiled. "I finished the course

last year, Professor Miller. I'm employed as a chemist by the Spartan Oil Company; remember?"

"Of course," said the other, who obviously didn't remember. "What can I do for you, Miss Trent?"

She smiled.

"You'd better sit down, first, Professor. This is going to take some time to explain."

Miller cast a reluctant glance at his workbench and took a straight-backed chair across from her. The large room was crowded with elaborate and costly equipment that seemed to dwarf the seated figures of the man and the woman. A fairly large cyclotron took up considerable floor space and a spectroscope had been placed on a table opposite a wall-screen. A good deal of the equipment, mostly electrical in nature, was totally unfamiliar to Marion.

"Professor Miller," she began, "a young woman who is employed here at the University is in serious trouble. The truth of the matter is, she has been accused of murder."

Munro Miller showed no surprise at the information.

"You are referring to the murder of Mr. Massey at the hands of Miss Bailey," he said mildly.

Marion gasped.

"You know?"

Miller spread his stained hands.

"My dear young lady, I *can* read, you know. The morning papers are full of it."

"Oh. Of course! How silly of me." The realization that the newspapers would have columns devoted to the crime had not occurred to her.

"Professor Miller," she said. "I can't believe that Alice killed him! She's been my best friend for years—and still is. She's absolutely incapable of taking a human life—especially in the cold-blooded, horrible way Drew Massey was slain."

"But the evidence is conclusive," Miller pointed out. "She has been identified by several people as being at Massey's home at the time he died; her fingerprints were found on various articles in the room. And Miss Bailey can give no coherent explanation of where she was at the time."

Marion nodded unhappily.

"I know. It seems fantastic to believe she is innocent when the police have so much to prove otherwise. But there's one peculiar angle to the case that wasn't in the papers, Professor Miller—at least, it shouldn't be; for I know the police have dismissed it as unimportant."

THE man's air of polite interest had undergone a subtle change.

"Just what is the—er—angle you have reference to, Miss Trent?" he asked.

Whereupon, Marion Trent gave a complete report of the mysterious black film on the finger-prints and on the hair clutched in the dead man's hand.

"I'm confident, Professor, that that film was composed either of carbon or of some similar ingredient. And I've come to you in the hopes that you can make something out of the puzzle."

He shook his head thoughtfully.

"Nothing I ever heard of could account for carbon in a person's fingerprints and hair. Perhaps it wasn't carbon; it is possible that Miss Bailey in some way, unintentionally probably, coated her finger-tips with graphite—she may have got it into her hair."

"No," Marion said. "I thought of that, too. But I am familiar enough with graphite to say definitely that this was not the ordinary crystallized form of the element."

Munro Miller rose with an air of finality.

"There's nothing else I might suggest, Miss Trent. Now, if you'll excuse me, I must get back to my work."

"But Professor Miller," Marion protested. "Alice is an employee of the University. We're her friends! We just can't step aside and let them convict her without a fight!

"I tell you, Alice Bailey is no murderer! I don't care *what* proof they have to the contrary! And I'm going to prove it—prove it by bringing the real criminal to justice!"

There were tears in her eyes, now—tears that sprang from rage and a feeling of impotence. The blond-haired little professor shifted his feet uneasily at her emotional outburst.

"I—I'm sorry, Miss Trent," he said lamely, obviously wishing she would go away. "I'd be glad to help you, if I could. But there's really nothing . . ."

Marion Trent stood up.

"Very well, sir. I know your work must be *very* important. I won't trouble you again. Goodbye."

He accompanied her to the door; hastened to open it for her.

"Please believe me," he said placatingly, as she stepped into the corridor. "If there were anything in my power that I could do for your friend, I would be only too happy to try. But as it is—"

"Thank you, Professor Miller," Marion said coldly, "but I wouldn't dream of wasting your time."

Before he could reply, she wheeled about and strode down the hall, her heels clicking an angry tempo against the stone flooring.

CHAPTER V

THE tall, spreading cottonwood trees lining High Street hid the late model Buick roadster from the light of a full moon.

On the opposite side of the street, and a half a block farther north, loomed the cathedral-like entrance to Northeastern's Administration Building, its white stone-work gleaming dully under the moon's rays.

Marion Trent rolled down both side windows of the car and removed her hat to let the summer night's air stir the soft wealth of her red-gold hair. From her handbag she took a cigarette, set fire to it with the dashboard lighter, and leaned wearily back against the cushioned seat to work out details of her next step.

She was playing a hunch. There was no other word for it. Probably her instinctive feeling that the answer to the strange death of Drew Massey had its roots in university soil, was behind that hunch—a theory strengthened by that fact that both Massey and Alice Bailey had been parts of the administrative personnel.

In the back of her mind was the half-formed intention of entering the university offices under the cover of darkness to conduct her own search for possible clues. The brief interview with Professor Munro Miller, earlier that same day, still rankled within her heart. If anything, it had increased her determination to clear her best friend.

After leaving Miller's laboratory, she had gone directly to police headquarters, and with her uncle's assistance, had managed to see Alice. The black-haired girl appeared to be in an almost trance-like state of bewilderment; and Marion found it impossible to get any help from her. Much of Alice's perplexity sprang from her doubt of her own innocence—a state of mind that Marion was helpless to change.

And so she had come away with a still heavier heart—and a more complete awareness of the enormity of the task she had undertaken. The thought

of entering the gloomy depths of the mammoth building sent little shivers along her spine, but it was something she had—

Suddenly Marion Trent stiffened and hastily doused her cigarette. A heavy sedan had turned off the cross-street a block ahead and rolled slowly to a halt across from the entrance to the Administration Building.

It was not so much the abrupt materialization of the car that had startled her. But as it swung into High Street, the driver had cut off all its lights and coasted almost stealthily to a stop.

Straining her eyes against the ghostly light, Marion saw the sedan door open and a slight, muffled figure step into the street. With hurried strides it crossed to the short length of walk and disappeared among the heavy shadows of the building.

Torn between a desire to follow the mysterious figure and a sensible reluctance to stick her neck into danger, Marion remained behind the wheel of her roadster.

Some fifteen minutes later, just when the girl had gotten together enough courage to start for her objective, the muffled figure reappeared. This time it was bent under the evidently considerable weight of what appeared to be a canvas bag almost as large as its owner. A moment later, the sedan's rear door was opened and the bag placed in the tonneau.

She heard the purr of the powerful motor and, lights still extinguished, the heavy car made a careful U turn and swung into the same cross-street from which it had originally appeared.

Whether or not the incident had any bearing on her own problem, Marion Trent was, of course, unable to judge. But certainly it was something out of the ordinary, which was precisely what she had come here to find.

AN instant later, the roadster shot north on High Street, swung into the cross-street with a complaining screech of skidding tires and set out in pursuit of the mysterious sedan.

Two blocks ahead was the winking red of a tail light. Marion closed the distance to a block, and by keeping the speedometer indicator at the thirty-five mark, held that margin.

The trail led from the quiet, better-class section of the city to the downtown business section. Despite the lateness of the hour, the traffic was fairly heavy and Marion found it difficult to keep the sedan in sight while passing through this district without getting so close that its driver might become aware of being trailed.

The outskirts of the manufacturing district loomed ahead. Here, the sedan cut its speed to hardly more than a crawl. Two blocks behind it, Marion switched off her headlights, slowed the roadster's pace to the same crawl, and offered a silent prayer that no cruising prowl car would spot her.

Towering blank walls of warehouses, storage plants and factories lined both sides of the narrow, cobble-stone street. An occasional street light emphasized the eerie gloom of the district.

A chill dampness was in the air now, and Marion realized the chase had led her to the vicinity of the broad, shallow river that formed a border to the city's western edge. A few blocks later, she saw the web-like superstructure of a bridge loom directly ahead.

The car ahead rolled gently to a halt almost at the river's bank. Marion cut off the roadster's motor and hastily applied the brakes. Less than a hundred yards now separated the two automobiles, but the girl felt reasonably sure the other driver would not be able to see the roadster because of the heavy shadows at that point.

By the faint radiance of a warning light at the bridge's entrance, she was able to pick out the silhouetted outline of the slight human figure as it stepped into the street.

For a long moment he stood motionless beside the car, as though to make certain that no one else was about. Then the sedan's rear door swung open and the bulky canvas sack was hauled out and placed on the pavement.

Marion watched the frail figure swing the bag to its shoulder and turn toward the river. With complete abandonment of all caution she leaped from the roadster and ran lightly in the little man's direction, careful to keep within the shadow of the buildings along the way.

When she was close enough to observe the stranger with a fair degree of clarity, she came to a halt and stepped into a doorway. She was just in time to see the muffled figure stagger up the low bank and come to a rubbery-legged stop.

MARION tried in vain to pierce the veil of half-light sufficiently to identify the man. But the brim of his felt hat cast a shadow that made his face an unrecognizable blur.

No longer was there the slightest doubt in Marion Trent's mind as to the stranger's purpose. The only thing she did not know was what that bag contained. But the combination of the darkness, the neighborhood, and the man's stealthy actions served to crystallize a gruesome picture of its contents.

Later, she realized that the intelligent thing would have been to wait until the man had finished his errand, then trail him to his home before notifying the police.

But she was suddenly too frightened to think coherently. Her heart pounding wildly, she tiptoed from the doorway, turned her back to the unknown man and his grisly burden, and ran for her car.

The clatter of her heels against the walk came to her ears as the pursuing footsteps of a homicidal maniac. With a muffled sob of s h e e r terror, she wrenched open the car door, leaped behind the wheel, whirled the light roadster about in a shrieking turn that narrowly missed a No Parking standard in front of a factory entrance and went streaking through the darkness in search of lights and people and familiar things.

She did not stop her mad flight until she was well within the city's shopping district. Skidding the car to a halt in front of an all-night drug store, she leaped out and entered the store in search of a telephone.

Fortunately, Lieutenant Lacey was still at Headquarters, and she was put through to him immediately. In a stammering rush of words she related what had taken place.

Lacey, though interested, was a bit sceptical of the conclusions she had arrived at.

"People throw other things in the river besides corpses, Miss Trent," he told her. "But it's certainly w o r t h looking into. Too bad you couldn't make out who it was you were following."

"All I know is, he was very short," Marion said. "And I don't think he was very—er—robust. . . ."

Her words trailed to a stop as a mental picture came before her eyes from nowhere.

It was the stunted, almost emaciated figure of Professor Munro Miller!

"Tell you what," the lieutenant was saying, "I'll pick you up right away, and you show me exactly where that bag was dumped into the water. Where are you now?"

Marion to. him, replaced the receiver and went back to the roadster to wait. She was still dazed with the realization that the man she had trailed to the waterfront might be her former organic chemistry teacher. Little by little, bits of facts began to piece themselves together in her mind.

Drew Massey had been a trustee of the university. Alice Bailey was, until her arrest, an employee of the same school. Her fingerprints and a few strands of her hair, found at the scene of Massey's murder, had been coated with pure carbon. Professor Munro Miller knew more about carbon than perhaps any other authority in the realm of science. Definitely, there was a connection to all those facts—a connection stronger, more tangible than coincidence!

SIRENS wailed briefly down the street, and a moment later two long, black police cars pulled to a stop alongside the roadster.

Lacey's huge frame slid from the front seat of one of them, and he came over to the brown-haired girl. He pulled open the door and clambered in beside her.

"You lead the way, Miss Trent," he growled, then jerked a meaty thumb toward the other two cars. "They'll follow us."

Neither the lieutenant nor his feminine companion had anything to say during the ride to the river's bank. Marion was thinking that if this proved to be a fool's errand, Lacey would never forgive her. But deep within her was the certainty that this was going to prove anything but a wild goose chase.

The three cars came to a halt at the very edge of the slight elevation of ground bordering the river. Plainclothesmen swarmed from the two police cars, their arms laden with a miscellany of equipment.

When Marion had pointed out the exact spot where the mysterious stranger had been standing with his burden, two of the detectives went over the soft earth carefully under the rays of powerful flashlights. Working with quick, precise movements, they made plaster casts of several footprints in the soggy ground.

Finally they stepped aside and signified their work was done.

"Okay, boys," Lacey told two of the others. "Get busy with those hooks."

Two round, plate-like sheets of metal, from each of which depended several evil-looking curved iron claws went into the water like the sea-going crabs they so closely resembled. The men operating them dragged on the attached lines, while two powerful searchlights illuminated the surface of the water.

Lacey stood with widespread legs, gazing intently down at the water line six feet below.

"A little farther out," he instructed. "The guy probably gave that bag a few hefty swings to send it well out from the shore."

A few minutes later, one of the pair at the lines gave a startled grunt.

"Think I got something, Lacey. My hooks are caught."

TWO of the others stepped forward to help. Gingerly, lest the catch break loose, they hauled in on the ropes. Soon there was a dull gleam of white canvas as the bag, resembling an over-size flour sack, broke the surface.

They brought it, water-soaked and unwieldy, to a level section of pavement at the edge of the roadway. The same searchlights centered it with radiance, and it lay there waiting further investigation.

Lacey, his face set in grim lines, stepped forward, a huge-bladed jack-

knife in one hand. Marion Trent turned her face away from the scene as the lieutenant knelt and began to cut through the heavy cloth.

Then she heard a collective gasp from those about the sack.

"All right, Miss Trent." The lieutenant's voice sounded weary and disillusioned. "You can look, now."

The bag had been slit along one side and from the aperture spilled a sodden, caked mass of ebon-black dust.

"What the devil *is* the stuff?" one of the men demanded. He knelt, took up a handful, rubbing it lightly between his palms. "Feels almost like wet gunpowder," he added.

Lacey appealed to Marion Trent for the answer.

"You're strong on this chemistry stuff, Miss Trent. Maybe you can figure out what it is."

She pushed through the circle of men and stooped to examine the flaky substance. They watched her rub a pinch of it between her fingers, saw her sniff at it and finally apply a grain or two to her tongue.

When she finally rose to her feet, there was an excited sparkle in her eyes.

"Yes, Lieutenant; I can identify this. And even though it hasn't turned out to be a dismembered corpse, I think it's a darned important discovery!"

Lacey stared at her without comprehension.

"What are you getting at, Miss Trent?"

"Simply this, Lieutenant," she replied significantly. *"This bag is filled with pure powdered carbon!"*

CHAPTER VI

THE tiny flashlight sent a thin beam of radiance flickering across the marble walls, touched briefly a stairhead leading to a lower floor, and winked out.

It was very dark here in the first floor corridor of Notheastern University's Administation Building. Marion felt her way warily along, her fingers in steady contact with the chill stone wall as a guide.

Since six that same evening, nearly four hours ago, she had remained in a cubby-hole of an office near the head of the basement stairs. The building had gradually emptied of employees and students, and by 7:30 none was left.

She had remained seated behind the cubby-hole door—opened ever so slightly that she might watch the basement stair-head—waiting for Professor Munro Miller to come up from his laboratory. It was his almost unvarying custom to leave the building each evening at 6:30 for dinner at a nearby restaurant.

But for some reason, he had not made an appearance until almost nine o'clock —a variation that had added to the tenseness of her nerves.

The weight of the handbag under her arm imparted a strong sense of confidence. She had borrowed the gun it contained from Anthony Ellis' collection of arms while calling on him early in the morning following the rescue of one hundred and fifteen pounds of carbon from a watery grave.

True, her uncle had not been advised of her act in borrowing the gun; but she expected to explain all that—afterward!

She followed the long corridor almost to the rear of the basement, walking on tip-toe. Carefully, her extended fingers counted each door she passed until, at the fifth, she came to a halt.

Cautiously she pressed an ear to the solid oak panel. There was no sound from within—as she had expected. With silent fingers, she turned the knob

and pressed against the wood. The door was locked.

This, too, she had anticipated—and provided for. From her handbag she took a ring containing several skeleton keys and set to work. Most of the doors in the building were equipped with a simple type of lock, and Marion did not expect any great difficulty in entering Miller's laboratory.

The third key she tried did the trick; and a moment later she was within the vast, machine-filled room.

THE interior was as black as a jungle night. She snapped on the button of her flashlight, swept it quickly about the tangle of wires and gadgets. A heavy wooden packing case near one wall suggested itself as a place of concealment. Marion crossed the room with hurried strides and slid from sight behind it.

An hour inched by. Marion's crouched position was putting too much strain on cramped muscles, and she sought to relieve them by kneeling, her knees protected by placing her handbag between them and the hard floor. She laid the gun, filched from Ellis' collection, beside her, within easy reach of her right hand. It was an odd, cumbersome weapon, designed by its inventor to include a built-in silencer. Ordinarily she would have passed it up for a more conservative model; but time had been short, and the first gun that came to hand was the one she took, after making sure it was loaded.

The sound of feet in the corridor outside caused her to stiffen in abrupt alarm. A key grated in the lock, the bolt clicked back, the door opened and closed, and a second later the room was flooded with light from a cluster of overhead bulbs.

Very slowly, Marion shifted her position until she was able to see clearly the room's interior. What she saw, then, brought an involuntary gasp to her lips that she barely prevented from being audible.

Professor Munro Miller was standing in a cleared section of the laboratory. And in his arms lay the limp, unconscious body of a lovely girl!

Marion recognized her at once. She was Paula Lane, a receptionist and file clerk employed in the university's main offices. She and Marion had become casual friends during the latter's occasional calls at the university since her graduation.

Miller was mumbling aloud—a common habit of men who work often by themselves—as he placed his unconscious burden on a bench-like structure beside a squat machine of black metal. The girl behind the packing case strained her ears to pick up his words.

"... wouldn't hurt you for the world, my dear. You're sound asleep; the drug does its work well. Afterward, you won't remember a thing except that you fell asleep at your desk ..."

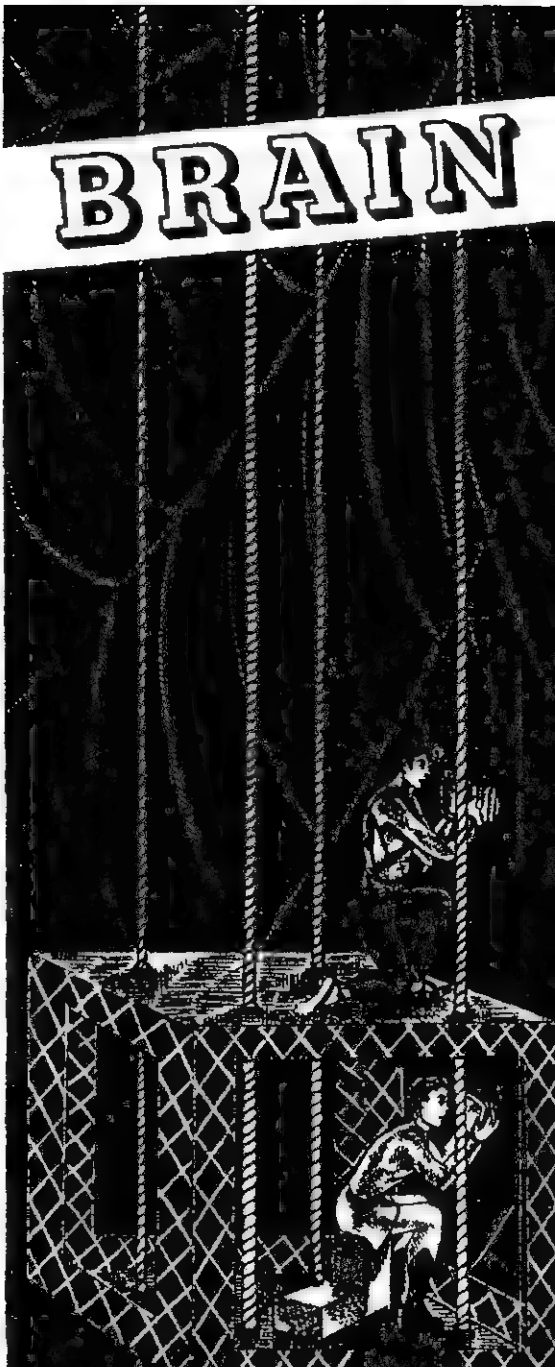
As Marion watched with mingled horror and interest, the little man attached electrode-like clamps to each of Paula's ankles. Wires ran from the two clamps into the body of the squat machine. Working with deft, rapid movements, he ran a third wire to a gleaming circle of chrome, which was fitted into place about the forehead of the unconscious girl.

Had it not been for the promise that no harm would come to Paula—a murmured promise not meant to be heard—Marion would have come out from her place of concealment and used the threat of her gun to force Miller to restore Paula Lane to full consciousness. But because of that unintentional promise, and because she realized that the method used in murdering Drew Mas-

(Continued on page 185)

The GREAT BRAIN

By DON WILCOX

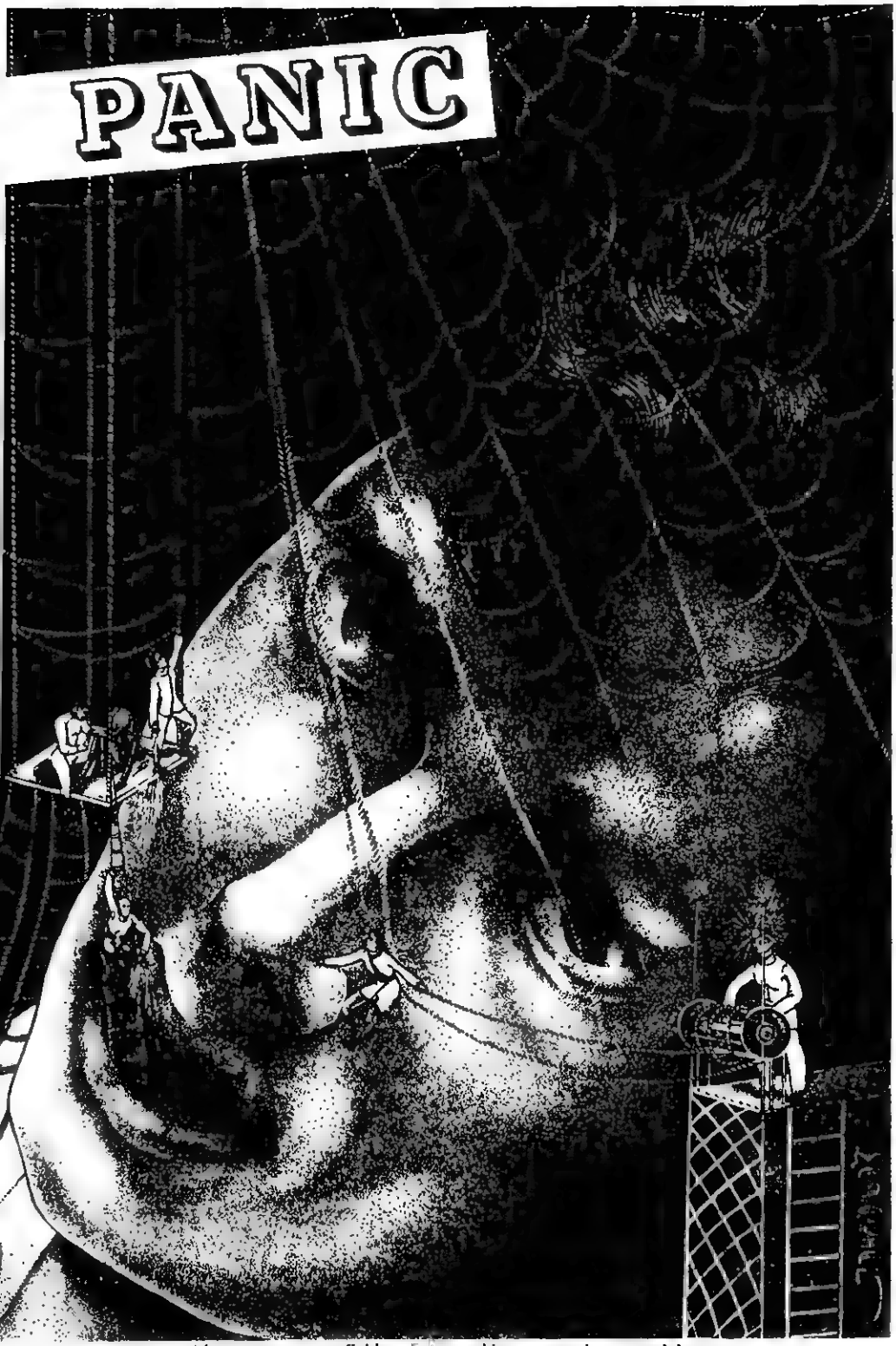


IT WAS kill or be killed, and Hi Turner loved life. His great-great-great-grandfather had used bayonets to advantage on a fiendish breed of animal called Nazis in the Second World War and Hi had brought his own favorite relic—rifle with bayonet—along on this space jaunt for the sake of a family tradition.

Death was coming at us. It was lucky for the party that Hi knew his weapon and didn't have to stop and argue with himself before using it.

Now that was my trouble. I, Joe Blonder, was the journalist of this party. I didn't like to mess up my elation over a successful space hop with the grimy business of defending my life against the attack of a misguided native. To me, that huge giant of a man with the pale green hairless skin and the clanking garb of copper chains around his middle might have just been born ugly, ferocious looking—yes, and a trifle murderous. But I didn't feel like plunging into a fight. I hadn't had

The mystery of giant brains brought a fearsome problem to Joe Blonder...



Men swung on scaffolds, photographing, measuring, examining . . .

ten minutes to stretch my legs and get my bearings.

We'd come here in search of the wonders of the universe, not trouble. But all at once, before we'd hiked a half mile from our space ship, this human fiend had reared up out of the brush right in front of us.

I saw him advancing on us with a big silver club, just as Hi Turner and the rest of the party saw, but in spite of this being an off-the-beaten trail satellite, I was ready to reach out my hand and say, "Howdy, pal. Let's be friends."

That'll be my failing till the day I die, no doubt; and it all came from someone's well-intended teachings during my childhood. Buried deep within my soft-boiled nature is the conviction that each and every living creature once had a mother, and therefore should have a spark of goodness, if not a soul, somewhere within the protoplasm, however crusty on the surface.

This yellowish-green beast of a man may have had a soul. If he did, Hi Turner meant to release it for adventures all its own. He met the huge fellow, running squarely under the swinging club. That club was every bit as large as the lamp-post on your corner, and it was polished metal, with little rows of cleats up and down it that weren't put there for ornaments.

When I say that Hi Turner ran under the club, don't get the impression that it was being held high over this giant pea-pod's brassy egg-bald head. No, he was holding it down on the level with his barrel-stave ribs. Hi Turner ran under it, upright, and that gives you a notion just how tall this green gent was.

Hi Turner's bayonet plunged with a metallic *crunch!* — a mixed sound — steel and bone and cartilage—though somehow I expected clanking chains rather than sure-nuff human blood and organs to come busting out of the big boy's insides.

The big green hands let go the club, which came bouncing over at the rest of us, and J. J. Redfife got almost smacked on the ankle.

Notice that I say *almost.* I saw it happen, and I know the club missed. But Redfife grabbed his ankle and fell into a heap.

No one paid any attention to Redfife's howl, even though he was supposed to be the captain of the expedition; because just at the moment we were all backing away from the fight, watching the emerald rage fill up in the big green guy's face.

Hi Turner and the bayonet stayed with him, and the big boy bent forward with an awful groan. He swayed back and forth like a steel tower that's about to collapse. He fell forward.

HI TURNER rolled out at the last possible moment and there was nothing but the gun and bayonet to break the fellow's heavy fall. When he finally got quiet, the tip of the bayonet had found its way through his back, peeping out just under the left shoulder blade.

"Hope his heart was in the right place," Hi Turner said, dusting off his hands.

"Let's get off this planet. It smells." This from my pal Skinny Davis, once known as the state champion high-jumper from my own hometown back in the United States, Earth.

"You coulda been a little more reckless about it, Turner," J. J. Redfife growled sarcastically. He was still sitting on the ground, rubbing his ankle. "There's such a thing as orders, you know. You didn't have to plunge in like a fool. We're armed. We could have shot him."

Hi Turner gave a restrained smile and held his tongue.

"Gee, wouldn't the sound of a shot be dangerous?" Skinny Davis broke in. Obviously Skinny was right, and that was probably the very reason Hi Turner had jumped the gun—to make sure the captain wouldn't have time to make a bad break.

"Maybe I have my own reasons for risking the sound of a gun," said J. J. Redfife, trying to justify himself with a reference to something mysterious.

"I'm sorry if I upset your plans, Captain Redfife," said Hi Turner with his usual quiet modesty. "But can't you go ahead and shoot him even though he's dead?"

It was curious to watch the interplay between Redfife and Hi Turner, because the latter was so careful to keep the captain's authority intact. It had been that way from the moment we took off in the *Sky Cat*. As Redfife's secretary, Hi Turner was his staunchest support. It made the rest of us continually wonder whether this beetle-browed, baldish, florid-faced captain of the skyways had something on the ball that wasn't too apparent in his talk and actions. Something that made Hi Turner turn credit toward him at every opportunity. Frankly, I found Redfife pretty thin—a Milky-Way drip, as the space boys say.

He had a distinguishing name, Captain J. J. Redfife, that was forever catching your eyes in the interplanetary newspapers. But whether his nice line of publicity was the result of any unusual merit as a space man or the result of an alert eye for publicity on the part of his secretary, Hi Turner, I could not say.

"Help me up," Redfife grunted. "I can't walk. We'll have to go back to the *Sky Cat* and revise our plans."

We helped him back, and he did a perfect imitation of helplessness. I decided to keep mum about knowing he wasn't hurt, to see what would come of it.

We all kept a sharp lookout as we retraced our steps. In the twenty minutes that we had been here on what was popularly called the Swampy Satellite* we had learned just one thing. Monstrous men could rise up out of the brush without warning and advance with huge metal clubs. They could, because one had done it, peace be to his soul, and thanks be to Hi Turner.

It was all that Skinny Davis and I could do to lug the metal club back. Some of the others traded off with us before we got back to the airlocks. Skinny was built along the lines of a flag-pole. I couldn't help thinking he'd have been less than a straw if the club had swung at him.

"I'd have jumped it," said Skinny Davis, grinning. He looked cool, but that was Skinny Davis' natural deception. He was as scared as any of us. If we stayed on this satellite we were in for trouble.

WE GATHERED in the space ship dining room, all except those of the party whom Redfife ordered to the controls or the guns. We knew it might

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* The Swampy Satellite is a moon of the planet Efde-Aurus, located mathematically during the 20th century by Earth astronomers, and later sighted by an amateur astronomer with a home-made telescope. Efde Aurus is not ordinarily visible from any of the four inner planets; but both planet and satellite can at times be seen by the naked eye by the inhabitants of Jupiter and Uranus. The name "Swampy Planet" was attached after one of two early space explorers was said to have sunk, space ship and all, through a surface of dead timbers which apparently concealed a bed of treacherous quicksand. The second of the two explorers endeavored to lead rescue parties to the scene of the disaster but he failed to relocate the swamp which swallowed up the space ship.

be expedient to lift into space at any moment. Even in the dining room our wealthy compatriot, Dwight Blackwell, kept a pair of binoculars busy sweeping across the ragged terrain, doubtless expecting fifty heads to pop up at once. Though one, patterned after the first, would have been enough to freshen the panic in most of us.

"Listen to me, men," Redfife was saying, tapping his black beetly eyebrow with a pencil. "I'm laid up. Damned carelessness, our letting that wild, naked savage son of an elephant throw his trunk at my ankle. But my man Turner admits it was his fault."

"Begging your pardon?" Hi Turner spoke up, cool as if he were asking for the salt.

"Your nerve's good, Turner, I'm not denying it," said the captain. "But this little accident is gonna cost us. I'll not walk a step for a week. I'll have to stay right here with the ship. I'll have to—what are you grinnin' about, Skinny?"

"Nothin'."

"You think I *want* to stay here, don't you? You think—"

"Huh-uh." Skinny gulped, shaking his head like a tortured schoolboy just before the whipping. "I was smilin' to think how that big green guy went 'Waaauk'—just like our bathtub back home."

"Cut it out. Where was I? Turner, where was I?"

"Staying right here, sir."

"That's right. I'll command the party from here," said Redfife. "You know what we've come to do. You know we haven't much time to do it in. The devil of it is that I can't watch over every one of you while you see the job through. Now get yourselves armed and strike out. But this time you'd better start the other direction. What's the matter, Blackwell?"

"Should I say something?" The wealthy little man in the immaculate white suit was superbly poised in his every word and gesture.

"Er—I thought you looked like you had an idea."

"Yes, now that you mention it," said Dwight Blackwell, putting his binoculars away. "I thought I might do well to join your little army."

"You mean you'd go out there?" Redfife was aghast. "You don't have to do that, Blackwell. It's gonna be doubly dangerous now. You're here as my guest. You own a hunk of the space lines that lent us this ship and interested us in the big competition. You—"

"You're the commander, Captain Redfife, and if you want me to stay aboard I will," said Blackwell with a respectful nod. "But the fact is that after what has happened I'm not too enthusiastic about staying in a parked ship. Not with that dead monster lying out there in plain sight. I saw what happened—"

"I'll send a detail out to bury him," said J. J. Redfife.

"Sooner or later they'll come looking for him. When they do—"

"We'll be somewhere else," said Captain Redfife. "We'd just as well start our explorations on another side of this satellite. Don't you agree?"

"Indeed, most heartily." Dwight Blackwell resumed looking out the window with the binoculars.

There was a pause in the conversation. We were wondering whom the captain would send out to do the dirty work, but he seemed to be uncertain of his next decision, and he was disturbed by Blackwell's comment that a parked ship might not be the safest place in the world after what had happened. He began rubbing his ankle. He grunted something about feeling a little better, between liniment and the bandage that

Dr. Blyman, the ship's physician, had applied.

"It's remarkable that it didn't swell up like a balloon if *that* thing hit it," said Dr. Blyman, looking at the big cleated metal club for the first time.

"I'm hard as nails," said the captain, looking around at the circle of us to gather in our admiration. "But don't get the idea I'm not in pain."

BLACKWELL brought us back to the problem at hand. "Here we are stalled, Captain Redfife. I know how you feel. This one encounter isn't going to bluff you out, but you've got to be cautious. If this place is infested with natives three times our size, and they're all savage killers, we may be all wet hitching our wagon to this star. But in the limited time the big interplanetary competition allows, it was our only chance."

"We'll stay with it," Redfife decided suddenly, as if anyone had doubted it. "But we'll move on around a quarter of a circumference. Slowly. We'll survey the land as we go. That's what we should have done in the first place."

"I quite agree with you, Captain," Blackwell said. "But I suppose your explorers were impatient to set their feet on the ground."

"Exactly." Captain Redfife shot a glance at Hi Turner. The truth was that Turner had suggested such a survey before the landing, but Redfife had yielded to his own impetuosity and ignored it.

Now Hi Turner sat smoking a pipe and thumbing through a book, apparently oblivious of all the conversation about him. This occasional mannerism, which might be mistaken for absent-mindedness, was annoying to the captain.

"Did you hear my decision to move on?" Redfife snapped.

Without taking his eyes off the book, Hi Turner picked up the wall phone and communicated the captain's order to the pilot's room.

We took off at low air-cruising speed.

Skinny and I gazed down on the enormous pea-green corpse a thousand feet beneath us. As our ship ascended, we saw other figures not far beyond the huge dead man. Live ones. Dozens of them. Moving up toward it.

CHAPTER II

Human Mice and Mountains

DOZENS, did I say? The dozens turned to hundreds—all shapes and colors and *sizes*.

In a moment our whole party joined us at the floor windows, and we took in what appeared to be two or three thousand of the most variegated human beings I ever hope to see. Most of them were armed, some with crude guns, others with knives. Before our take-off they had been moving toward us, for they were facing us as we lifted.

It was plain that they were well organized; and that they were a dangerous lot out looking for trouble goes without saying. It was significant that they gave no signs of being scared out of their wits by a space ship. A few of them took pot shots in our direction. But the startling thing about this heterogeneous half-naked army was the variations in their sizes. The biggest of them were fully fifty times as large as the little fellows. And yet the human mice and the human mountains were all stalking the brush-covered land together, as if they had something in common.

Maybe that something was us.

Within a few minutes all these creatures were lost in the receding landscape and during the hours of survey

that followed we saw no more of them.

What we did see was an endless wilderness of scraggly forest and brush lands and great patches of tangled fallen trees—or perhaps they were roots. From our moving point of observation, approximately five thousand feet up, these patches of tangled wood appeared through the binoculars to be so much mangrove swamp.

Occasionally we swooped down closer, but the impossibility of landing on such a jungle of waste was obvious. At length we came to a clearing beside a lake and the pilot set us down on the mile-long sandbar.

It was obvious, from the low spirits of the whole party, that none of us was too well satisfied with this station. But in the course of the quarter of a circumference we had traversed, this was the most inviting place we had found.

"Don't be in a hurry to get out," the captain growled, still stinging over the earlier encounter with the Swampy Satellite's native life. "Keep all your binoculars busy for the next full hour. As for the rest of you, settle down till I get you lined out. Hi Turner, where are you?"

"At your service," said Hi, without lifting his eyes from a book.

"Where's your folder on this big interplanetary competition? Let's have another once over on the rules and regulations." The captain began shuffling through his pockets, having decided that said folder was in his own hands when last seen.

But Hi Turner said, "Never mind, Redfife. I can recite them from memory."

No one was surprised at this, because the captain was always having Hi read them over.

This time, however, we all listened more attentively than ever, owing to the fact that we were right here on our chosen grounds, and what we did about it must be strictly in accordance with the rules.

THE competition was open to all space explorers who were duly registered in the Solar Interplanetary Association. All the planets and their satellites—in fact, all regions of space within the bounds of the Solar system —were open for exploration.

The prize was a cool ten million dollars over and above the expenses of the prize-winning explorer's expedition.

That ten million would be paid to the exploring party whose total discoveries were judged to offer the most valuable new knowledge to solar mankind.

It sounded simple enough. But you'd be suprised how many times we went over the various stipulations to be sure we had all the right interpretations.

Take that phrase, "to offer the most valuable new knowledge to solar mankind."

Which word would the judges of the competition stress most of all, most, or valuable, or new? How should that word valuable be construed? Most valuable in dollars and cents? Or most beneficial to mankind? Or most promising for the future of the associated travel organizations who were back of this contest?

Dr. Blyman was staunch in his contention that discoveries beneficial to man's physical and mental wellbeing would outrank anything else in the minds of the judges.

"I think I'm on the track of something," the doctor said with a mysterious lift of the eyebrow toward Hi Turner. It was a curious fact that whenever Dr. Blyman expressed an opinion he looked to Hi Turner rather than Captain Redfife for a reaction. This was likewise true of some of the

others. It was the natural result of Hi's being more sincerely interested in what they had to say than was the captain, who was always primarily concerned with listening to himself. I'll have more to say about this later, for the more I watched this man Turner the more I saw that he was a modern Socrates.*

Not a very talkative Socrates, I must admit. Maybe a Fighting Socrates would be the more accurate title, considering his skill with the old fashioned rifle and bayonet. His silence, however, was only one of his many techniques for keeping peace with the captain, who was exceedingly jealous of anything Hi Turner said or did.

The wise little financier, Dwight Blackwell, said he had not the slightest doubt about what we should look for if we wanted to win the competition.

"Strike gold," said Blackwell crisply. "Strike diamonds and precious stones and the judges won't hesitate."

"I'd like to amend that," said Hi Turner, "to include all valuable natural resources. Anything that would attract the industrial world. If the space lines can see permanent trade coming up—"

Captain Redfife interrupted. "Bring us some drinks, Skinny. Where are my cigars, Joe?"

I found cigars, and Skinny brought drinks. Dr. Blyman applied liniment to the captain's ankle, which had stubbornly refused to swell. By the time we got around to all the trifles that made up his personal comfort he'd gotten off onto a story of a certain Martian brunette.

"The way she went for me would make you guys awful jealous," he rambled on. "Hi, the next time we go skylarkin' off on a chase like this, make sure that I send her an invitation to come along. It would do me good to see you lads burn up with jealousy."

For the next thirty minutes his brunette memories dominated the conference.

AND what happened to all our enthusiasm to put over our job of winning an interplanetary prize? It oozed out like wind out of a leaky balloon.

I watched the impatience mount in the faces of the group around the table. Most of them were specialists in some particular line that related to a planetary exploration: a geologist, a photographer, an ethnologist, an astronomer, and so on. They had come together in answer to Captain Redfife's urgent appeal for trained men. Some of them had signed up at a personal sacrifice.

In this moment you could feel their keen disappointment. They were stuck with a leader who, faced with a challenge to do something worthwhile, could turn deaf ears toward all constructive suggestions, nurse a faked sprained ankle, and grow voluble with braggings about a brunette from Mars.

One of the pilots got up from the table and sauntered off toward the control room.

"Let's send the captain back to Mars on the lifeboat," Skinny Davis whispered to me.

"It beats me," I retorted in an under-

* The method of Socrates was to question his fellow men for their opinions and knowledge, to learn from them, and likewise to teach them, through the process of sharing their interests and inquiring with them. Modern students of human character recognize that great men are usually quick to establish bonds of sympathetic understanding with others, high or low; while the pretenders to greatness are prone to force their own personal interests into the limelight, remaining callous to the honest accomplishments of others. It is apparent that the narrator of this story believes Hi Turner is achieving what the captain is too selfish to achieve, namely a social integration of the various members of the expedition.—Ed.

tone, "that Hi Turner should keep on playing ball with him."

"There'll be limits," said Skinny.

The captain had reached that part of one of his well-worn yarns where the brunette had to taxi him home at five in the morning after a hilarious evening at a New York bar. Suddenly we were all jolted to attention by three rings from the pilot room.

"What's up?" Hi Turner barked into the telephone. "What? . . . Sinking? . . . Quicksand?!" Hi turned to Redfife. "Landing gear's settled down in five feet of sand, in case you're interested."

"Yeah?" J. J. Redfife jumped to his feet angrily, forgetting his bad ankle. "Sinking, huh? How the hell does that happen?"

Said Skinny Davis, not too discreetly, "The Martian brunette sunk us."

CHAPTER III

A Head for the Doctor

FOR the next five hours the whole party of us, with the exception of Captain Redfife, devoted our muscles and perspiration to the job of stopping the vertical descent of our ship.

The engineers knew what they were doing, but they were handicapped by the lack of any solid bases that could be used as hitching posts. They went to work constructing huge platforms—swamp-rafts, as we termed them—which could serve as islands all around the big hull.

These swamp-rafts required an endless amount of timbers. We all pitched in, dragging fallen trees and dead limbs from the edge of the jungle.

By the time darkness came on we had something to show for our efforts. The crude platforms of logs, even though they too were slowly sinking, supported a series of thirty-foot tripods. The tripods, constructed of the longest, straightest logs, each supported a block and tackle. Thus the engineers succeeded in getting a lift with a high mechanical advantage on each of several points of the hull.

They applied a small atomic motor to the task of drawing the ropes. The ship's sinking was soon checked.

These happy results were only temporary, of course, for ropes had to be continually re-tightened, each in turn, since each of the log swamp-rafts was slowly sinking.

We were assured, however, that the ship could be kept at its present level until daylight returned, at which time new thirty-foot tripods might have to be constructed to provide a new series of hitches.

As for lifting the ship clear of the sandbar and furnishing it with a solid floor suitable for a take-off that would not damage the landing gear, the engineers weren't too optimistic. The light gravity of this satellite would be an advantage, and they believed the job could be done; but it might require several Swampy Satellite days.

The engineers and pilots stayed on the job all night. You could hear the low roar of the motor and the hard-boiled mutterings of the men.

Some two dozen of us were supposed to be sleeping, but I doubt if anyone slept. There was too much of that lingering apprehension that we might wake up and find ourselves somewhere under the surface of the swamp. Also the fear that if we stayed on the surface, big green men might happen along and drop in for a visit, forgetting to park their clubs by the door.

Once during the night Skinny Davis came jumping down out of his overhead bunk like a monster spider in a night shirt. The blue night light showed his

sleepy eyes bulging and his white teeth clenched in fear.

"Did they get you?" I asked.

"They swung at me," Skinny mumbled. Then he saw where he was and crawled back into his bunk sheepishly. "What's the light on for?"

"Hi Turner's reading," I said, and Hi glanced over at our end of the sleeping room.

"We aren't the first to have trouble with the swamps here," said Hi in a low voice. "I've been reading that a couple of ships came here nearly a century ago, and one of them went down."

"That's it, tell me bedtime stories," said Skinny Davis.

A moment later, however, Skinny was snoring. So I may have been the only one who heard Hi Turner read of the ill-fated Antlock expedition which was lost somewhere in this corner of the solar system eighty years ago.

"A hundred and twenty men and women—think of it," said Hi Turner. "Handpicked colonists, too. That's lots of people to disappear without leaving a trail."

I must have drifted off while he was still talking, for soon I was dreaming that we were sinking down through the mire to join the Antlock expedition, which turned out to be a shipful of ghastly green skeletons with sashes of copper chains around their middles.

THE next morning Dr. Blyman talked the captain into letting him borrow the plane, and I was picked to go with him. So were Hi Turner, a pilot, and a geologist—five of us in all.

We took off from the runway along the top of the *Sky Cat* and bolted out through the thin Swampy Satellite air at high speed.

Our destination was the spot where the green man had been left unburied.

There was something buzzing in Dr. Blyman's brain, as I had noted the night before.

Once we'd gained ten thousand in the plane he opened up with his idea.

"That ten million prize," he said, "was to be awarded to the *expedition*, not the individuals in it. Am I right, Turner?"

"Right."

"That's something we've never been too clear on, you know. Are we the expedition, or are we just the employees of J. J. Redfife? Are we the expedition, or is he? Or are we all employees, the captain included, in which case our sponsor, Blackwell's space ship line, is the true expedition?"

"I checked up on that point, Doctor," said Hi Turner. "The rules make it plain that so long as there is no mutiny or outbreak of violence to mar the unity within a given party of explorers, all members of that party shall be considered to constitute the expedition."

"Then we'd all get a share in the prize?" Dr. Blyman asked.

"Exactly. The leader of the winning expedition will be counted as ten men in the apportioning of the prize money. The leader may recommend doubling the shares of some of his more valuable men. But every man who takes part will have a share."

"Every man," the doctor repeated. "What about a man who starts but fails to return?"

"The check might be mailed to his heirs," said Hi Turner. "But if you have reference to deserters or persons dishonorably discharged, they wouldn't be in line for a share, according to the rules. In any event the lost man's share would depend on the Captain's recommendation."

The doctor did some figuring. There were thirty-one of us. If we should win the prize (and I thought he was being wildly optimistic to talk in this

vein, considering our record of bad luck) we'd all have a share.

"Captain Redfife would count as ten men," the doctor continued, "so the prize would be split into forty parts, and he'd get ten of them. One-fortieth of ten million dollars is a quarter of a million—for each of us."

"Right."

"And for Redfife—two and a half million."

"Precisely."

Those were nice fat figures, anyway you looked at them, as far as I was concerned. I gazed down at the passing blue-gray jungle, keeping a sharp watch for men but seeing none.

"Here's what it amounts to," said the doctor a bit testily. "If our captain turns out to be such a Milky Way drip that half his men desert, his own share of the prize would increase.

"But the fewer he has in his party, the less chance he has of capturing a lot of valuable discoveries."

DR. BLYMAN stiffened defensively and I saw that he was entirely out of agreement with this simple view of things.

"Look here, Turner. Most of us are specialists. Here's Ben Weismuller, a geologist. He alone may make a discovery that will win the day. Suppose he does it. Suppose he uncovers some new rich natural blessing on this satellite? Where's the justice in his sharing on equal terms with those bonehead pilots who dropped our ship in the swamp?"

Hi Turner tried to shake the doctor off his topic. "Let's don't cross so many bridges in such a hurry. None of us has discovered anything, so far, but a mess of tangled woods and swamp."

"An important discovery may be nearer than you think," said the doctor with a mysterious overconfidence.

The pilot circled over the spot where we had first landed on the previous day, and we looked in vain for signs of enemies hidden among the olive-colored brush.

"You haven't forgot," said Hi Turner, turning his sharp eyes toward the doctor, "that there's to be an individual prize to the one outstanding man of *each* expedition?"

"Half a million?"

"Correct."

The green body was still down there, lying exactly where we had left it. The bestial denizens of these wild jungles didn't even bother to bury their dead.

"Land as close to it as possible," the doctor instructed the pilot. "Coming out to help me, gentlemen?"

"With pleasure," said Ben Weismuller.

"With our weapons," said Hi Turner, picking up his rifle and bayonet. "I'm dubious. They might have left it there to bait us."

In the next ten minutes we succeeded in severing the big greenish-yellow hairless head from the massive body and placing it in a jar of alcohol for pickling.

"That head," said the doctor, gloating with satisfaction, "will be worth looking into."

CHAPTER IV

Swamp Casualties

WE WERE ready to take off. We called to Ben Weismuller, who had strayed off about forty yards to the left to pick up a sample of glittering rock from an outcropping.

"Coming," said Ben, picking up his tools.

Then it happened, like lightning out of a clear sky. A club and a head came up out of a crevice in the rock. The

head was of a deep bluish cast. The club was a silvery cleated weapon. It swung without warning.

I hate to tell you what that club did to Ben Weismuller. It all happened so quick that we were stunned. A split second after it came down with a deadly crunching blow, the big muddy blue hand reached up out of hidden waters and dragged the murdered body down.

I shot twice. Hi Turner's gun was blazing, too, and one bullet brought a spurt of blood from the disappearing arm.

But almost instantly the attacker and his dead victim were out of sight. Nothing could be seen but the low ledge of rock and a scarcely noticeable pool of swamp water under the dead tree limbs just beyond.

For the next hour we searched like mad men. But the blue swamp man was gone.

We flew back feeling too low to talk. The pilot was noticeably nervous. You could feel it in his wobbly control of the plane.

Hi Turner was quiet and thoughtful and mad, though he wasn't taking it out on anyone, like the captain would have. He turned to me three or four times and said, "Blonder, this was a bad one." Sometimes he added, "We've traded a live man for the head of a dead one."

As for Dr. Blyman, I assumed he felt pretty much like the rest of us. He didn't say a dozen words all the way back. He just sat there gazing down at his trophy in the pickle jar.

We made a bouncy landing on the runway atop the space ship. Somehow it was comforting to know there was still a space ship to land on, albeit a slowly sinking one.

Yes, the *Sky Cat* had lost ground during our absence, and to my astonishment only four or five men were working on it.

CHAPTER V

Trails Beneath the Jungle

THINGS had happened during our absence. Most of the party had gone off to try to rescue my pal Skinny Davis and another chap, who had bumped into hard luck.

Originally, Skinny and two others had started out to get some photographs. They had discovered a vast, deep hole hidden somewhere under the wilderness of fallen trees.

The three of them had tried to climb down with their cameras, but had found it tough going. One of the trio had given up and climbed back to the top to wait. Soon he had grown terrified, having lost sight of the other two. Finally he had reported back to the ship.

"He claimed that he heard some voices echoing up from way down deep."

This from the engineer who was giving us the story; for the captain had been unwilling to tell us anything, being preoccupied with defeating Dwight Blackwell in a checker game.

"It wasn't Skinny's voice, or Lexington's, but other human voices. So this fellow La Rue raced back to tell us. It sounded bad. The whole party picked up and went back with him, armed with guns and all the ropes we could spare."

The engineer gave a worried look at the ship.

"Fact is we're gonna need those ropes —and the men too. I wish they'd get back. We've got to build some new derricks yet today."

"We'll try to round them up," said Hi Turner. "Without the ship we're all sunk. Meanwhile, I suggest you engineers make up a list of your needs and turn it over to the captain."

"I did," the engineer complained.

"He told me to toss it on his desk. I might as well have buried it in the quicksand."

Hi Turner said nothing but motioned the plane pilot and me to come on. His strong square features were full of steel, and I fancied it was the steel of anger.

As we sailed low over the swamp he kept his deep eyes on the search every minute. We circled slowly, round and round over the area where the rescue party was supposed to have gone.

To see nothing but dismal jungle was disheartening. I know that the three of us felt so sick over what had happened to our geologist that no one wanted to talk. I tried to keep my eyes on the tangled brush, but a hideous picture haunted me—the picture of a blue face rising out of the swamp, a club swishing through the air, a crushed body being dragged down beneath the slimy surface.

"What did the captain say when you told him we lost Ben Weismuller?"

"I didn't tell him," said Hi Turner. "I left that job to Dr. Blyman. It was Blyman's excursion. We were only sent along to assist him. I never like to exceed my authority. It's Blyman's business to make his own report."

"He didn't do it, though," said the pilot.

"How do you know?"

"I helped him down into the ship with his pickle jar," said the pilot, "and he was thinking about it and nothing else. He said, 'I got what I went after, Captain. But it seems to have shrunk since yesterday.' And Captain Redfife stared at the green head in the jar, and nodded, and went on playing checkers. Then Doc Blyman said he'd be busy in his laboratory from now on, and after I'd helped him in with the head, he closed the door after me. So there wasn't a word said about what happened to the geologist."

"Did you say anything, Blonder?"

"Not a word," I said.

"Maybe Redfife will miss him sooner or later," said Hi Turner with bitterness and indignation.

IN THE minutes of cold silence that followed, I realized that Hi Turner was playing the difficult game of self-restraint. He was refraining from any criticism of Captain Redfife. In fact, he was giving the captain all the moral support he possibly could. But his allegiance was not blind, and he was on the ragged edge of exasperation.

Were there any limits to the captain's selfishness? Was he willing to leave the whole burden of this exploration to his men? Did he realize that the expedition was going to pieces for lack of leadership?

For the present it seemed that Hi Turner had decided to stand by in silence, weighing the answers to these questions.

We spotted a flag at the farther edge of a forest-covered hill. We swooped down toward it. Soon we could discern several members of our party perched on a knoll at the edge of a wide patch of tangled deadwood.

The men were waving at us and we came down close. They pointed toward the nearby acres of fallen forest, which looked a great deal like the mangrove swamps I had once seen in America.

But on closer inspection we failed to see any lake of water underlying this tangle of dead brush. Instead, there was the deep, mysterious black of a vast emptiness. The tangle of deadwood was a thatched ceiling over what might conceivably be a huge pit. Or perhaps a series of pits. The fact that there were a few clumps of living trees rising through the matted waste argued that there were peaks or ridges of land down among those hidden valleys.

We couldn't land. That was impossible.

We tried the radio, but the party at the edge of the hill had brought no receiver. That reduced their communications to a lot of senseless pointings and pantomimes.

"They've sent part of the gang down by rope," Hi Turner observed.

"Shall we drop 'em a note to get back to the ship?"

"I'll parachute down," said Hi. "It may take some persuasion to pull them away from a rescue job. Want to come along?"

Hi and I parachuted down and had the good luck to land in low trees near the party.

"Have you found your lost men?" was Hi's battlecry.

"No."

"No trace?"

"We thought so at first," said La Rue. "The first two men we let down by rope shouted back that they'd found Skinny Davis' foot tracks on a clay path.

They went on down—and four more after them. Now we don't get an answer from anyone."

"Come in close, men," said Hi, "but don't let your guard down. Blonder and I have a few things to talk over with you. First of all, we've some unpleasant news of our own. We've lost a man. Weismuller."

Hi went on to relate how it had happened. "The blue devil came right up out of the swamp waters and dealt death instantly. We'd have had as much chance against a stroke of lightning. So you see what we're up against. Maybe there aren't many of the critters, but they're deadly. Weismuller is gone."

THEN and there we stopped for a minute of reverent silence, which turned into a homely sort of service, brief and intense, without many words. It drew the group of us closer together. We had all respected the ill-fated geologist.

Right away someone asked about Captain Redfife's reaction to this bad news and Hi Turner simply said, "I didn't trouble to tell him."

The silent acceptance of that answer was proof that we had ceased to expect anything from Redfife.

But Redfife must remain our captain. The rules of the competition protected him. We dared not breathe a breath of mutiny—not if there was the remotest chance that we might pull down the prize.

"It's up to *us*, men," said Hi Turner. "*We've* got to cooperate to put something across."

"Without a leader?" anyone might have added; but no one did.

I couldn't help saying to myself, "Yes, put something across! We'll risk our heads while Redfife sits and plays checkers on a sinking ship, and brags about his brunettes. And if we should come through with some prize discovery, he'll pull down his ten dollars to our one!"

That blast of fury stayed over me like a blow-torch during the gruelling hours that followed. The more I thought of Redfife, the madder I got.

Then a new, bitter suspicion flared up in my mind.

Did Redfife give a damn how many of us got killed?

That was worth thinking about. Right away I thought of Redfife's singular interest in Dr. Blyman. The doctor was on the trail of something. Suppose it turned out big—something of great value to humanity?

I pondered this matter.

I was still pondering when I followed Hi Turner down the ropes into blackness to pick up the trail of foottracks

along a clay shelf. I was half oblivious to the steep, dark valley beneath the matted roof.

I didn't dare talk my thoughts to Hi Turner—not yet. But what I foresaw was full of dynamite with all the fuses lit.

All I said to Hi Turner was, "How many men could ride in that space-lifeboat we carry?"

"Three or four, comfortably," said Hi, holding a flashlight over the dark path. "Why?"

"I just wondered."

Later I said, "Look, if we don't find our lost men, Hi, it cuts the number of our party down almost a third."

"I'm aware of that," Hi replied.

I counted the possible losses over aloud. Our geologist, of course, was the only sure casualty. But if Skinny Davis and Lexington weren't found and neither were the two who went after them, nor the four who went after them—

"Look, that's nine out of our original thirty-one," I said. "Look what that would do to the prize money—"

"There won't be any prize money for this expedition," said Hi Turner, acting most unconcerned over the matter. "Between you and me, I've already shot my wad trying to keep the captain intact. As Dr. Blyman would say, he just doesn't respond to treatment. But the Fates have made him our captain, and there's that joker in the competition rules. All we can hope to do is get back with few casualties."

"You're way ahead of me," I said.

"Nevertheless, Blonder, I concede that your mathematics are solid enough," Hi Turner added. "When Redfife learns some men are lost, he'll realize that his share of the possible prize money is thereby increased. If he thinks he can lop off eleven men and still win, he'll be perfectly happy."

"Eleven? I had counted only nine."

Hi replied, "You left out yourself and me."

CHAPTER VI

They Walk, They Talk

BEFORE Hi Turner and I had started down into this region, he had sent the rest of the group back to the ship.

They had gone reluctantly. It's never easy to give up on a search job when the lives of your companions are at stake. La Rue had clung to his story of hearing strange voices welling up out of these black chasms.

But Hi had worked his Socratic argument on the group until they had admitted that saving the ship must be the first consideration.

Moreover, it was agreed that if any of them left the ship henceforth, on impulsive excursions of their own, as Skinny and the other two men had done in their eagerness for pictures, no one would come to their rescue if they got lost.

It was a harsh rule but the group agreed to stand by it. That was good. It proved that they were welcoming Hi Turner's unofficial leadership. What was even more important, it proved that we were all getting our second wind of courage against the dangers of this place.

"If a big blue human beast leaps out of the swamps and crushes a man and drags him under," Hi had said emphatically, "*that man is gone*. No one of us dare play the fool and try to recover him. This satellite is too treacherous. We'll be lucky if any of us gets back."

And so the rescue party had gone back—all but the six who were supposed to be somewhere down in these chasms looking for the lost three photographers.

And now Hi and I were at it, too, but working with the utmost caution. We worked silently, keeping our ears and eyes sharp for the mysterious men with the voices. We charted the paths that ran along the narrow black ledges. Wherever our men had left shoetracks on the soft soil, we hazarded guesses on which of the three lost groups had come that way.

Our maps began to spread out from the "rope station"—our point of descent—in the form of a crescent-shaped spider web. We ran no chances of losing our original bearings, and twice before sunset we trailed back to the rope station.

Hi had sent instructions back with the main rescue party to have the pilot fly over in the plane at sunset, and again at sunrise, in case we hadn't returned by that time. This seemed a good idea. It was a simple way for us to inform the ship that we were still on the job and hadn't gotten lost ourselves.

Accordingly, when the ragged blotches of purple sky began to darken above our patchwork roof, we climbed up the rope and waited.

No plane came.

We waited at the hill's edge until the sky was almost black, but the pilot didn't come our way.

"It's not like him to miss an appointment," I commented.

"No. Possibly our party didn't get back to the ship. If they did, the pilot got our message, but something interfered with our plan."

"The captain, for instance."

We ate a light supper from the supplies the main party had left us.

Hi smoked his big Dutch pipe deliberately and watched the stars. I checked over the flashlights.

A voice welled up from somewhere far beneath us. It sounded a mile away, all blurred with deep-well echoes.

"Haa-aaa-wa-aaal!"

Hi gave me a curious look and went on smoking. I crawled to the edge of the pit, holding to the rope with one hand, and bent over to listen.

From the deep distance it came again.

"Saa-aah-tah-waaah!"

IT'S strange how anything so far away and harmless-sounding can shoot chills through you. I was as tense as a cat ready to spring. And just then from right behind me came a tap-tap-tap. It was Hi Turner tapping his pipe, but I almost jumped off the cliff.

"Good for an all night search, Blonder?" he asked.

So we climbed down the rope with a fresh supply of flashlights. With no appointments until dawn we were free to follow several of our paths beyond the points where the footprints ran out.

But right away two very mysterious new facts burst in upon our methodical plans.

First, we discovered that the bottomless blackness of these chasms was not as black at night. There was light in them. Not bright light; nothing sharp, like the light of a torch or a candle. But rather a steamy, intangible glow.

It was more like a promise of light than light itself: the sort of thing you feel on a foggy night when you're driving through pitch-blackness but somehow you know there must be a city just beyond that hill.

Looking down into these chasms, I got the feeling that they were much deeper and more immense than I had previously guessed. For the first time we could sense the fact that our shelf-paths were high up on the walls that curved away from us to those pinkish misty depths.

Before we were over the first gasp of excitement over this discovery, the sec-

ond thing came along. And I mean came along.

It was a shadow.

Luckily, we hadn't turned on our flashlights during the past few minutes. And you can be sure we didn't turn them on now.

That shadow was a man, fully as big and tall as the big yellowish-green man that Hi had dispatched not so many hours ago. Maybe larger. We couldn't tell much about him, for he was simply a dark object against the uncertain light.

He was moving along on a level a few feet below us—walking without benefit of any light other than the glow from far below. The shadows sharpened as he came closer, and I saw that he was feeling his way along in the darkness by brushing his right hand along the edge of the shelf that formed our path.

"Back," Hi whispered. We flattened ourselves against the limestone wall.

The big shadow came on with a slow, lazy stride, and the footfalls were almost silent, in spite of the creature's great bulk.

Our ledge was five or six feet wide, as I had remembered it from the last blaze of the flashlight. Now it seemed nonexistent, lost in the formless void that framed this shadowy figure directly in front of us. My hand gripped the flashlight. I kept thinking, what if I should snap the light on against my will?

For all I could tell, Hi had vanished completely in the blackness, and I had melted away, too, all except for my thumping heart and my hand that gripped the flashlight.

From somewhere deep down among the walls a shrill female voice came singing up to us.

"Gree-e-e-ekellll!"

"Well?"

It was a masculine roar from this big shadow beside us. It made my ears ring.

ON TOP of the echoes of his roar he slapped his hand down on the ledge, and the resounding clack was apparently a powerful expression of annoyance. Could his single utterance of "Well?" mean what it meant in our language?

There was a moment's silence, except for his somewhat agitated pounding of fists on the upper ledge where we stood. Presently his great hand came to rest on the toe of my shoe.

I didn't move.

Again the shrill female voice rang up to us.

"Gree-e-e-ekellll!"

The big dark figure gave a guttural snort, cupped his hands to his mouth, and yelled.

"I TOLD YOU THREE TIMES I'M GOING FOR A WALK. BY MYSELF. NOW, STOP YOUR SHOUTING."

Then he snorted angrily to himself, "There!" and stepped off in the darkness.

CHAPTER VII

Maybe the Landlord?

HI TURNER had to shake me out of my paralysis before I could move from the spot. If he was scared he didn't show it.

"We're in luck, Blonder! Tremendous luck! He talks our language. I'd have flashed a light on but I didn't want to scare him. Maybe I can call him."

"Don't," I whispered. "Let him have his walk."

"You're right, Blonder. He's in no mood to meet people."

"Neither am I," I said. "Not if he's

the same breed that came up out of the swamp."

"I wonder what color this one was. Where do you suppose he got our language? It's unquestionably his native tongue. And maybe the woman's—though I couldn't be sure. All she said was Greekel. But she said it without our accent, I think. How do you say Greekel, Blonder?"

"I never say Greekel."

"When he comes back he'll be in a better mood. Do you suppose he's an offshoot of the lost Antlock expedition? It was composed of several families, you know."

"Giants?"

"Of course not. Normal people like ourselves. How tall was this man? About twelve feet? Did you ever hear anything like his voice? Fine quality. Not a voice to be irritated over trifles. It didn't fit. I don't understand this business, Blonder. Either there's a new strain of the human race down here, or else a lot of freaks. I wonder how soon he'll come back this way."

"Let's find another path," I suggested. "I don't feel a bit sociable."

"I'm guessing we'll find Skinny Davis and all the rest of our lost sheep sitting around one of the council fires in these bottomless pits," said Hi. "I hope they've broken the ice gently. A lot will depend on whether they've made a good first impression."

"I hope they aren't being boiled in a pot."

The rest of the night was a game of hide and seek, with us doing both. If our seeking didn't come to much it was because we mixed courage with caution and stayed hidden.

All night the game went on, and it reminded me of something I had once read about every man's actions toward his fellow men. All of a man's social relations, according to this writer, were made up of two kinds of action: a tendency to approach and a tendency to retreat. In our night's escapade Hi Turner promoted most of the approaches and I ballyhooed for the retreats.

Once along an upper trail we came in view of some more patches of starry sky, and wondered if our lost sheep had found their way out.

Once on a lower trail we glimpsed a cavernous valley of glowing coals more than a mile below us, and wondered if our lost ones had found their way in.

By daylight, after approximately seven and a half hours of night* we were back at the rope station staring up at the purplish-white sky, hoping for the promised sunrise visit from our pilot.

He didn't come.

We sat there, silent and moody. Hi smoked two pipefuls and began talking about faraway things, such as development of man, and why the human race is what it is and whether it could be called a rigid form of life, or whether it isn't comparatively flexible.

He kept looking at the hillside all the time he talked, and I guessed he was thinking in several directions at once.

He swerved over into the realm of physical creation, talking about how the planets must have looked when they were young, before they cooled down and were glossed over with trees and grass.

He rose and sauntered off while talking to me, and of course I followed. I was puzzled to know what he was driving at, but I assumed that his

*In the Earth year 2016 the Mars Center Observatory found the period of rotation of the Swampy Satellite to be sixteen standard interplanetary hours (i.e., Earth hours). Later computations refined this figure; by 2032 it was established at 15 hours, 57 minutes and 40 seconds.

main purpose was to divert our minds from what looked to be a desperate situation.

We climbed the hill. We threaded our way from one clearing to another, keeping our revolvers ready; but no trouble sprang out at us.

THE trouble was what we saw when we got to the hilltop: the space ship. It had lost ground. As nearly as we could judge, the lower fourth of it was submerged in the sandy swamp.

That is to say, the whole central section of the hull was bogged down to a depth of twelve or thirteen feet.

"Well, they're at least on the job," said Hi. "I'd begun to think they might have flown off and left us."

About half of the men appeared to be working furiously. The rest of them, a dozen or more, were drifting around helplessly as if waiting for orders.

Hi set a lively pace as we jogged down the hill.

"We'll go back and join them," he said abruptly. "They've forgotten about us."

"What makes you think that?"

"Because I counted them. There were at least twenty-three. I couldn't make out who was who, but it's simple mathematics. If Redfife and Blackwell and the doctor are inside, most of our original twenty-one are present or accounted for, not forgetting ourselves and one casualty."

"The hell." I suddenly saw daylight. "Some of the gang we're searching for are already home!"

"Obviously."

I felt a heat wave on the back of my neck. "Why didn't the captain send us word?"

Hi tossed his head and gave a little laugh. "We'll gather up our things and go, Blonder. . . . Or will we?" His tone suddenly changed. "By George, if we weren't out of food we'd take another run down into that big man's wonder-world. Would you be game?"

Before I could answer, an immense shadow raced past us. We whirled to see it zipping across the hillside—the huge cigar-shaped shadow of a flying ship.

The next moment we were chasing up the hill again, trying to keep the flying monster in view.

It was a small blue space boat of unfamiliar design, about half as large as our *Sky Cat*. It was cruising at airflight speed, spiralling for a landing. It made no sound, and when I grabbed a flying glance at our own ship in the distance, I was satisfied that our men had failed to see this newcomer.

The blue boat swept downward, nosing toward the shaded side of the hills, out of sight of the lake beach where the *Sky Cat* lay.

It steadied down for a landing.

I couldn't see any spot that looked safe for a landing. But the blue boat seemed to know where it was going. It eased into a mass of thick trees and slid down under the jungle and out of sight.

"What do you make of that, Hi? Natives or visitors?"

"Natives," said Hi. "The *Sky Cat* had better sweep its floors and get ready for company. It might turn out to be the Swampy landlord. Maybe he'll only want to collect the rent. Or maybe he'll wave a No Trespassing sign. And again it's barely possible that he'll invite the *Sky Catters* to stay for dinner."

"In any event," I said, "we'd better get home and get our boat lifted."

"I'm not so sure," said Hi. "It occurs to me that I'm no engineer, and it gives me a pain in the back to lift."

I knew he was being facetious. I was

surprised to see him slip into such a mood in the face of all that was happening. Was it devised to bolster his own morale, I wondered, or did he have some plan of action.

"Considering the mathematics of the situation," he went on, "I can't possibly argue myself into saving the ship. If the best that two dozen men can do is sink it to twelve feet, two more of us would put it down to thirteen, and that would be unlucky."

So there *was* a plan of action up Hi Turner's sleeve; his blithe manner proved it.

"All right," I said. "We don't go back. Where do we go?"

"Down the hill to see if Skinny Davis brought us any food."

Sure enough, there was Skinny Davis waiting down by the rope station, waving at us to come down, grinning as if all was right with the world. His grin was typical of his optimistic delusions, for things were far from right.

Nevertheless it was good to know that nothing had happened to Skinny Davis.

CHAPTER VIII

An Infra-Red Photo

"DON'T tell us the worst till you feed us," said Hi as we pounded down the last of the descent.

Skinny Davis took a knapsack off his shoulder. "I figured you'd be hungry. I came prepared. And I brought you something else you might wanta see. This darned wilderness has had inhabitants."

"Has had!" I snorted. "What do you call those big green and blue guys with the clubs?"

"I call 'em monsters," said Skinny, passing out the food to us. "What I'm gettin' at is, these black chasms that have roofed over with vines and things used to be full of civilization. Honest, there used to be people living down there."

"So you heard the voices too," said Hi.

"Oh, *that*. Well, that's something else again. I've figured out that was pretty much our imaginations. Especially La Rue's. All I ever heard coulda been the echoes of stones that got kicked over the edge. The trail we followed took us right out on the lake side of the hill, and we didn't bump into any ghosts."

"Then what gave you the notion," said Hi, appearing to be primarily concerned with demolishing sandwiches, "that there might have been people in these depths once upon a time."

"Because there's a big carved statue down there," said Skinny. "Wanta see a photo of it? We took a couple infra-red shots down over the edge. We figured it might show something besides blackness—such as maybe a lot of fallen rocks or an invisible river. But what we got was pure luck. I'll show you."

Skinny took an envelope from his pocket, and produced a pair of photographs.

"Luck," he repeated.

Both of the pictures showed a man, or a statue of a man, as Skinny believed it to be. The figure appeared to be sleeping on a platform in the bed of the valley. The severe vertical walls that rose around him were of natural rock. Obviously there was considerable warmth wafting over this rocky enclosure, for the infra-red radiations of heat gave everything a soft grayish glow.

"Now I *know* we're going down again," Hi Turner said. "But that's no statue."

"I knew he'd say that," Skinny said

to me. "Okay, Hi, what is it? Not a living person, surely?"

"Why not?"

"Look at the steps built up to the stone platform where he's resting his head. Yes, they're steps. They've got to be, because right there along the edge you can see a railing."

The *steps and the handrailing* were there, and all around on the platform where the head was resting were lines of little dark tracks that could have been made by tiny muddy feet.

"Where did you take it, Skinny?"

SKINNY described a certain chasm that we were able to identify. We went into a discussion of measurements, guessing on the distance across from one vertical wall to another. We also surmised the probable dimensions of the platform steps. The more we figured the more I shook my head.

"Hell, by that count this creature would be all of two or three hundred feet tall," I said.

"Nearer five hundred," said Hi.

"That's what I'd figured," said Skinny. "That's why I concluded he must be a statue—or else we're off the track on our dimensions."

"We're off, of course," said Hi confidently. Then he told Skinny what he and I had encountered during the past night in the way of shadowy figures and voices.

Skinny Davis' eyes began to bug wide, the way they used to do in the sports pictures when he was clearing the jump bar. It was a half-scared face that seemed to say, "Gee, did I get by by the skin of my teeth!"

What he did say was, "So you men are goin' back down? We—I think I better get back to the ship and write some letters."

"There's no outgoing mail. Stay with us," I said. "But don't take any stock in five-hundred foot giants. Your picture caught something close, like this figure that passed Hi and me, while taking his midnight stroll. He was on a shelf only a few feet down. That's the kind of place it is in this picture—a close-up—with a lot of decorations around the platform that make it look *like* steps."

Hi Turner snapped his fingers three or four times and paced around a couple circles and sat down and lit his pipe.

"Right away we'll go down again, the three of us," Hi said. "Meantime we'd better do some topflight thinking. There's a freakish physiological principle at work on this satellite that some of us are going to have trouble understanding. I don't know what it's all about. But I'm getting an inkling."

"What's an inkling?" said Skinny. "Something you can put in writing?"

"Not yet, Skinny. But there's one man in our party who should be able to tie it down to fact. That's Dr. Blyman."

"He's got a lead on something," said Skinny. He's been so busy in his lab room that he don't even know the ship's sinking."

"Still working on that head?" I asked. "I figured he wanted to pick up a sample of that green pigment."

"No," said Hi. "The colors of pigments wouldn't interest him half so much as something else. Remember those hundreds of men we saw creeping up out of the swamp? What was the most startling thing about them?"

"Their size," said Skinny. "All the way from midgets to giants. I never saw anything like it."

"You're hitting the nail on the head," said Hi. "Now I know why the captain can sit back and play checkers while we lose ourselves in the swamp. He thinks the prize money is won."

"How so?"

"Through Dr. Blyman's science. Let the doctor dig into these heads and see what makes the pituitary gland click. Let him find out wherein it's different from ours. Possibly there's a mutation that can filter into the whole of human heredity eventually—that is, if scientists discover it to be good, not bad."

Skinny made a wry face. "Those swamp devils were big, I don't deny, but who'd want one for a grandfather?"

Skinny and I summoned our nerve and followed Hi Turner down the rope into the chasm. This act was the beginning of a three-way partnership that was due to last as long as we should live.

"We'll follow toward the south," said Hi. "The big man—or statue—can sleep on. We'll get back to him later if we can. But first we'll try to crash this underworld by the front door."

HIS idea was to move toward the entrance that had swallowed up the blue space ship.

In the two hours that followed we traversed many a subterranean trail. It gave you a weird feeling, to be slipping along through patches of dark and light under ragged clusters of overhanging deadwood like giant birds' nests.

Voices would come up to us from the blackness, way down deep. Or sometimes from near at hand; but these voices would go silent suddenly, and the silence would hang heavy, and our nerves would tighten with the knowledge that we were being watched.

At Hi's suggestion we left our revolvers in our pockets. To go creeping above this unseen city with weapons ready would look bad. Our coming was doubtless being grapevined ahead of us.

A wide patch of sunlight glared in on us from a short distance ahead and we saw the smooth descending track of the hidden space ship runway that had swallowed up the blue ship.

"They know we're coming, all right," Hi whispered.

We stopped to listen. The voices were close and full of jumbled excitement, like the back stage chatter of actors before the curtain goes up.

We couldn't see these actors, though they could probably see us, looking up from the lower ledges. We tiptoed along softly.

"They don't have callers every day," I whispered.

"Wish I could get the drift of that jabber," said Skinny. "I'll bet they're getting a cannibal stew pot ready."

"You're safe, Skinny," said Hi. "They'd never bother to cook anything as meatless as you."

They met us at a hairpin turn down along the slope of the space ship runway.

They were a spectacular bunch, from the first glimpse. The morning sun, filling the spacious incline, threw pointed blue shadows at their big padded white feet. And Hi was right, they were ready for us.

CHAPTER IX

Jumping Dominoes

THERE were eleven of them, and they might have been a troupe of acrobats out of a circus.

They formed perfect stair-steps.

The little man at the lower end was not more than two feet tall. The little lady next to him was three feet. The man beside her, four—and so they ran, in one-foot steps. The final statue-like man at the upper end of the line was all of twelve feet tall.

It was this tall one who clicked a

metal cricket to give the signal. Then all eleven of them bowed deeply, in perfect unison.

The twelve-footer gave another click and took two steps forward. The little fellow on the end advanced simultaneously—a matter of ten or twelve steps for his short legs—so that the two of them stood side by side in front of the line. Then there was another click and everybody bowed again.

Hi had the presence of mind to return the bow.

That was only the beginning. Before these elaborate waist-reducing exercises were over, Skinny and I were doing them too.

"We're in luck," Skinny whispered. "They're civilized."

"Don't forget," I warned, "that civilized men are the most deadly."

Yes, I was scared in spite of all this friendly fol-de-rol.

"Or, if they're cannibals," Skinny continued, "they're polite about it. By Jupiter, there's some not bad looking females among them. That five-footer reminds me of the Follies—"

"Sssh," Hi warned. "Watch your cues."

The eleven stair-steps motioned us in unison, and without a spoken word from them we fell into the middle of their single-file procession and traipsed down the long winding ramp.

They were a handsome bunch, all with glossy black hair and healthy tanned complexions. Their bare arms and legs were trim and muscular.

"They must take a lot of sun baths," Skinny whispered. "Do you suppose they loll around in those swamps up on top?"

"They look too clean for that," Hi said. "They must be a different breed from those savages we encountered."

I was puzzled at first by their odd clothing. The shoes, as I have mentioned, were white and very large. The big man's were like suitcases, and the little two-footer's were like loaves of bread dough.

Bread dough is a fairly accurate description, not only for the white shoes but also for the soft elastic garments of varied colors which they wore around their bodies. The material, as I later learned, was dug from the earth and kneaded like dough until it could be cut, and shaped and worn like thin pliable leather.

The warmth of these chasms, as I had previously discovered, was a pleasing, fragrant warmth, with none of the dankness one would expect of such deep places. Thus the thin, cool clothing of this elastic white clay was as suitable as fine linen, and evidently much more in fashion.

After we crossed mud puddles these bulky shoes would scatter a host of oval tracks of all sizes for a short distance. But soon the mud would wear off, and the shoes would make no tracks, and almost no sounds.

Noticing this, Hi reminded us that during our earlier jaunt through this region we may have been shadowed continually.

Now we began to see numerous animated dominoes ahead of us—and colored garments running around against a background of dark wall. It made you see spots in front of your eyes.

"I'm dizzy," said Skinny. "It reminds me of the time I fell on my head in the Jupiter Olympics."

"Those shoes are luminous," Hi noted. "These sub-swampers carry their headlights on their feet."

AS WE found are way into the lower regions, the scene took on some aspects of a city. We passed the rear end of the big slick blue space ship, and the two dozen various sized men who

were servicing it stopped and gazed at us. Skinny started to bow to them, but Hi nudged him and we all marched on.

The glow of light was soft and pleasing at this depth.

It came from the veins of luminous cream colored earth that streaked the golden brown walls and floors.

White shoes became less conspicuous, but the brightly colored garments took on an added sheen. Everywhere there were people, big and little, going about their work. Some were cooking food over open fires—though where they found their raw materials was more than I could see.

Some were forging metals, some were tailoring clothes to the bodies of their customers, several were hurrying along with wooden baskets toward the little markets that were cut in the perpendicular walls like so many arched alcoves.

Little streams of water slipped along crooked courses in the cavern bottoms. Where they came from or where they went was a mystery. We and our eleven escorts stopped for a drink. I was sure this sweet cool water had never touched the muddy swamps of the uplands.

The party came to a halt. I had lost all sense of direction, but was certain we had been circling to the left all through our tour of the city. Now I was looking at the same blue space ship from a new angle. For the first time I read the name on its proud slender nose.

THE BRIDGE

"Our language again!" Hi whispered. That was the thing that had given him confidence in our excursion.

"Funny name for a ship," Skinny muttered.

Within a few yards of the big cargo door in the ship's side I noticed that huge blotches of white were swinging through the air with a swift graceful motion. My first thought was, what efficient, noiseless cranes they must have for unloading those bales of cotton.

Then I saw. The bales of cotton were the big padded shoes of a seventy-five foot man. He was walking around the blue space ship. Glowing light reflected off his vast red shirt and breechcloth with the brightness of fire.

His head, huge and well shaped, was covered with a mass of crisp black hair that hung almost to his shoulders. Which is to say, it was several feet long and probably as strong as rope. But it was clipped evenly and bound with a wide red band, adding to his immaculate appearance.

At the moment he was busy helping some of the smaller men with the job of turning *The Bridge* around.

Suddenly he noticed us sandwiched within the eleven stairsteps. He straightened up.

"Good morning, gentlemen," he said.

Skinny grabbed Hi and me by the arms. The big voice had almost knocked us over.

"Good morning," Hi Turner said, and he said it naturally. Under the conditions I would have shouted.

"Look out, now," Skinny whispered to me. "Here's where we get picked up and hurled against the wall."

"Wait, Skinny, don't go—"

But Skinny Davis was not a man to forget he had a pair of legs. He jumped out of rank. Four of the smaller stairsteps meant to stop him, but he cleared them like a bee-stung calf, and raced down the path.

I DON'T know where he thought he would go. At an insignificant distance of fifty yards he came to a dead end wall and stopped. He stood there, staring up at the big red-shirted seventy-five footer and looking foolish.

The big man paid no attention to Skinny's fright—nor to mine. The fact is, I might have joined the chase if Hi Turner hadn't kept a grip on my arm.

"We don't often have visitors." The seventy-five footer's voice was as big as a boiler factory and as gentle as the low note of a marimba. "Rumors have been flying that there were strangers in our midst. Just now my space ship party, returning from abroad, has reported that there is a new solar ship in our midst. The *Sky Cat*, I believe."

"Yes," said Hi. "We came in it."

"I'm glad to welcome you," and by George, the strapping giant dropped right down on his haunches beside us, and his face was as congenial as a Thanksgiving dinner.

The eleven stair-steps bowed deeply and marched off, leaving us at the seventy-five footer's mercy. Skinny came back cautiously, and as the stair-steps retreated past him he waved at the cute little five-footer.

By this time Seventy-five was down on the floor with his big handsome head propped up from his elbows.

Right away we fell into an easy conversation about the weather and the perils of space travel. Two hours later, by the time space ship workers had finished up for the day and had trotted on to another part of the city, the four of us were discussing the ins and outs of the universe like four long lost brothers.

CHAPTER X

Brains and Bulk

HI TURNER was never the sort to hold back anything if he took a notion to trust someone. And for some reason he sized up this red-shirted Seventy-five to be worthy of our best confidences.

You might think that a bit surprising. I thought the same, and I puzzled over it at the time. How did Hi know this big fellow wasn't just putting up a friendly front, with the idea of stealing anything we had to offer? What were the symptoms of his integrity, if any?

I quizzed Hi about this matter later and he pointed out that in the first place the prepared reception from the eleven stair-steps had been carried out in such a way that we were free to come or run away. That looked good. Next there were the times when Skinny got scared and did start to run away. It was significant, Hi said, that the big man chose to ignore these demonstrations of fear. "If you'll notice," said Hi, "a man who wants to fleece you, or harm you, will almost instinctively snatch his little advantages when you leave an opening. But Seventy-five didn't."

But over and above those little things, I knew there was the big fact that Hi was determined to gamble on the mercy of these sub-swamp people. After all, our ship was sinking in quicksand. When you think of Captain Redfife, we were worse than sunk. And we knew those blue and green swamp fiends were bestial killers.

On the other hand these sub-swamp people talked our language. And as Hi Turner put it, "If you can talk a man's tongue, you can make him hold his fire."

And so, in the course of our curiously chummy communion with this big red-shirted giant, Hi Turner explained very frankly all about the interplanetary competition that had brought us here. He told how Captain Redfife had bogged down with a bad case of inertia, and how the ship was losing a battle against the swamp.

"They'll never get it up," Seventy-five had commented. "I know that ground."

Then we told of Dr. Blyman's pre-

occupation with dissecting the green man's skull. At this point, Skinny Davis added that the doctor was in considerable frenzy when last seen.

The big man shook his head, more gravely, I thought, than at any time before.

"I can appreciate your doctor's zeal," he said. "But I fear for him. He may soon find himself in a desperate dilemma. I hope he is a man of very strong moral fiber."

"Unfortunately," said Hi, and I was astounded by this sudden revelation, "our Dr. Blyman, though a splendid scientist, has been involved in some shameless medical scandals in time past. I was unable to prevent his being chosen for this trip. But I had hoped he would be able to clean up the slate of the past."

"Not at all easy," said Seventy-five. "What of this lifeboat trip you mentioned?"

SKINNY was the one to furnish this information. He explained that the pilot had been expected to come looking for Hi and me at sunset and again at sunrise, but that the captain had blasted that plan—and indeed had refused to let anyone come out to apprise us of the fact that the lost members had returned. The captain's interests ran in different channels: He had put the pilot aboard the life boat and sent him back to pick up something, nobody was sure what.

"You never saw a captain act so sly about a space boat errand," said Skinny Davis. "You'd have thought he was sendin' that pilot back to pick up his Martian brunette—though of course there wouldn't be time to go all the way to Mars and back before the deadline on the competition."

"Maybe," I suggested, "he sent word that he's got the prize clinched, but he'll need a new boat to get back."

The big man shook his head gravely. "I can't see why you don't put your captain in irons, Mr. Turner, and take the reins over yourself. You're perfectly competent."

"A rule stands in the way," said Hi.

"Too bad. I predict the party will end in anarchy unless something is done."

"It's already begun," said Skinny. "When I slipped away from the ship the engineers were doin' their best to keep everybody busy, but Doc Blyman was tryin' to organize a squad for some business of his own, and there was considerable gee-hawin'."

"Dr. Blyman? What did he need men for?"

"Darned if I know."

By that time I could see that Hi felt very uncomfortable over the way things must be going back at the ship. Somehow we'd been so eager to get down to these lower regions and see what brand of humans made all the voices and shadows, that we'd failed to press Skinny for all the news of troubles back at home base. But now they were coming out, and they multiplied our worries over a sinking ship.

The whole business must have looked sinister to our big red-shirted host by this time, for he was growing uneasy too. He questioned us some more about the rules of the competition.

"No," said Hi, "there's no way of exchanging captains. Nothing short of a fatal accident could alter the present arrangement."

"Mr. Turner, have you gentlemen come to me to ask me to perpetrate a fatal accident?"

Seventy-five's manner of putting this harsh suggestion was altogether puzzling. I felt a surge of defensive anger, and I wanted to retort something hot.

Skinny, on the other hand, had raised

his eyebrows with a hint of hope as if the suggestion wasn't half bad. "Would you?" he gasped, half under his breath.

But Hi Turner gave no sign either of eagerness or of irritation. He replied, "No prize in the world would be worth that sort of strategy."

We all fell silent.

IT TOOK me a few minutes to realize that this big boy had just put the three of us to a test, and that Hi Turner was the only one who had passed with honors.

We were served a most delightful lunch. The eleven stair-steps brought in the four trays. The big fellow, still sprawling down on the floor beside us, said he would eat to be sociable, though he wasn't really hungry. He nibbled at one of the peculiar sandwiches which, incidentally, was about half as big as his thumb nail.

"You men will have to look around down here," he said casually. "Nice living. You'd probably learn to like it, if you weren't rushed with getting out and exploring for valuable discoveries."

It was at this point that he put his sandwich down half-finished and began talking in a very earnest manner.

"It just occurs to me, gentlemen, that there might be some bit of knowledge down here in these chasms that would help out. If you see anything that strikes you as curious or remarkable, please don't hesitate to ask."

To say that the innocence of this statement virtually paralyzed the three of us is to put it mildly. I saw Skinny swallow his sandwich like an ostrich swallowing an orange.

"If I can't answer your questions," said the seventy-five footer, "I could take you to our celebrated sage. It would be an hour's walk, but perhaps you wouldn't mind. You see, he doesn't get around at all, owing to the handicap of too much wisdom. By your customary linear measure he has attained a height of five hundred and fifty feet."

It must have been embarrassing to our host the way we all remained speechless. The seventy-five footer looked a trifle disappointed, wondering if we had failed to understand his statement. For the moment not even Hi Turner could rise to the occasion with more than a loud gulp.

"Ug — er — ah." The senseless sounds came from Skinny Davis. He handed the two photos to our big man, who smiled eagerly.

"Yes, that's the one I'm talking about," said Seventy-five. "Have you run across him already?"

Skinny and I shook our heads. Then Hi Turner recovered his speech.

"Did—did you say he was five hundred and—"

"Five hundred and fifty feet tall, that's right."

"Because he—"

"Because he's so very wise. You know the invariable Swampy Satellite principle—one's height always keeps step with his mental activity."

CHAPTER XI

The Sleeper

"BULK signifies brains. That combination is a great blessing to our civilization here," the big man went on. "It might not work everywhere, but in the few generations that this society has been going—since the Antlock expedition, you know—everyone has gotten used to the system.

"But as I was saying, the Sleeper—that's what we call our sage because he spends so much time resting—the Sleeper has the handicap of too much wisdom. A few years ago it accumulated until he got down with it, and

he seldom tries to get up.

"You see, once he got down the wisdom grew on him by leaps and bounds. There he was, looking comfortable and generally pretty wide-awake, and full of all the good advice and information that anyone might want to know. So people *came to him.*

"They came to talk over their troubles—and the more they came to talk and counsel with him, the larger he became. Being wise he never betrayed anyone's confidences. But the sum total of his knowledge about people and their problems became quite considerable.

"That's why I advise you," our big friend continued, "that if you happen onto anything down in this realm that excites your curiosity, just go to the Sleeper and he'll help you out."

Suddenly the three of us broke out laughing. If ever in our lives we had bumped into anything that excited curiosity, this variation in size was it. Even as we sat there trying to find words to explain our amusement, the eleven pairs of dough-like shoes swished along the trail and the eleven handsome stairsteps came up to wait upon our host and us.

They gathered up the luncheon trays —the smaller ones doing the picking up and passing the stuff right up the steps until it was all in the hands of the tallest four men and women.

Skinny won another interested look from the flashy eyes of that cute little five-footer. At the same time I shuddered to discover that the eleven-foot female near the end was trying to smile at me.

Our big host, paying no attention, went on with his discussion of our needs.

"Now if I were exploring your planets—and to tell the truth I used to get around some before I grew too large for space travel—it wouldn't take me long to pick up something remarkable. That is, remarkable to us here. On Mars or Jupiter, the Earth, or Efde-Aurus, for example—"

"What," said I, "do you think you would choose?"

"My choice—please don't take any personal offense, gentlemen—my choice of a remarkable fact would be the deception that nature plays upon man in those parts of the universe."

"I don't understand."

"Perhaps my experience on the Swampy Satellites is responsible. But to me the apparent uniformity among men in your part of the universe is the most outrageous deception that nature ever worked."

"Uniformity? You mean in size?" said Hi.

"Exactly. Take the first half dozen men of the same height that you meet on the street. Line them up together. There they stand, each one six feet tall, and with only minor differences in weight and build and muscle. One of those men may not have the capacity to read and write. Could you pick him out?"

SKINNY jumped to the answer. "Sure you could, as quick as a wink."

"Perhaps, Mr. Davis, but suppose you have left five men all of whom can read and write. Can you, without the benefit of your famed intelligence and aptitude tests, tell which one might outweigh the others by a hundred to one —*mentally?*"

"You might if you studied them a little and thought the matter over."

"Exactly my point. The likeness of size tends to throw you off the track, as far as their actual mental development is concerned. And so your society places burdens on some mentalities—burdens that such persons aren't

capable of performing. Others may have superior mentalities which are allowed to go to waste. The whole effect of the physical uniformity is to encourage a mental uniformity. Am I right, Mr. Davis?"

"I don't exactly get it," said Skinny. "But I see Hi Turner sittin' there noddin' his head, so I reckon there must be somethin' in what you say."

"Getting back to our proposed visit to our sage," said the big man hastily, "I wonder if some of the others of your party wouldn't like to come with us? Not all—from what I gather of your situation—would be appreciative; but perhaps a few."

It was a pretty swell offer. Our host explained that he could escort us all three back to our ship for a minute to pick up our choice of the others.

We were on the verge of starting, when the cunning little five-footer, having stepped out of the stair-steps to play messenger girl, came swishing along the trail signalling to our host that she had a written message for him.

The seventy-five footer bent down to accept the letter—an official one, as I later learned. He straightened up sharply, and a flicker of worry showed in his eyes. Then he re-read the message, but did not divulge its contents, even though the messenger girl hinted her own curiosity.

"Gentlemen, we'll make a slight change in our plans," he said shortly. "If you, Mr. Turner, will give me the names of the others you wish to join you, I'll see that they arrive here—safely."

There was an ominous implication to that word "safely." He concluded, "Meanwhile, you will go ahead without me. Dorothy, will you take these gentlemen in charge? Dorothy is one of our immigrants still serving her apprenticeship as a new citizen. But you will find her very alert."

Dorothy took us in charge.

By the time she had conducted us through the city, what we hadn't inquired about the place wasn't worth inquiring.

I can't say that I digested all the answers. That chemical process for manufacturing synthetic foods went right over my head. And I was amazed by the engineering feats that had protected these radio-active chasms from the upper swamps.

But out of the complexity of information I modestly admit that I absorbed far more than Skinny did. He would ask the same question over as many as four times, and gaze at Dorothy with a moonstruck lack of comprehension while she answered.

His favorite query was, "Gee, how'd you happen to come to this place anyhow?"

AND she would smile and say that if anyone looks for a Utopia long enough and hopes for it strong enough, he's sure to find it. That, she said, was how most of the newcomers came. Though it wasn't generally known, the Swampy Satellite was engaged in regular commerce with the Efde-Aurus trade centers; and now and then new persons would filter in.

"They come by *The Bridge*," said Dorothy.

"What's the bridge?" Skinny asked.

"The space ship. It's the bridge between the old life and the new."

"Like it here?" said Skinny.

"More than you can realize," she said. "If you knew how my life used to be—all sham and pretense. My father tried to make me a super-super. But here I am just what I am."

"What do you mean?" said Skinny blankly. "What are you?"

"A five-footer. Can't you see? I'm not full of knowledge and understanding, like that big seventy-five footer you've been talking with. And so I don't try to be what I'm not."

"Heck, you're lucky to be just like you are," said Skinny. "You think I'd fall for you like a ton of bricks if you were seventy-five feet high? Not me. I was kinda crazy about your smile the minute I laid eyes on you. But if that smile had been six feet wide I'd'a been scared outa my shoes."

Suddenly we discovered that the gargantuan cylinder on our right was a man's ankle, and the big tower we had just passed—I had carelessly taken it to be a stone cliff —was nothing more than a gigantic foot.

In fact we were now walking along the platform that Skinny had caught in his infra-red photos. How many thousands of yards of cloth it must have taken to provide him with his clothes.

I don't know how to describe the feeling we got, walking along the length of that platform. If you're thinking how unbelievable it was when you were a kid seeing an elephant for the first time, you're not even warm. Though you're a little closer if you felt a sort of awesome reverence for that elephant, saying to yourself, "This is sure as heck the mostest wonderfulest thing that will ever happen, ever, ever."

I can say to you that the admiration we felt was as deep and full as any emotion you can name. Hi Turner's head kept turning and his eyes kept getting wider and he said, "I'll remember this day when I've forgotten everything else."

When we reached the upper end we took several semicircular walks around the mighty head. What we could see in these sixty yard tours was a series of rare candid camera shots that needed piecing together before they could mean anything. The camera view from high overhead had been greatly superior.

However, Dorothy put us aboard a small elevator, which lifted us to a level a few yards above the great, wide, young-looking eyes. From here we had our opportunity for a face-to-face talk.

CHAPTER XII

"It's in the Bag"

THE Sleeper's massive eyelashes flicked at us. The action caused a stir of wind making a slight ripple in the network of ropes that hung protectively about him.

When his great lips parted we clung to the rail with a half-conscious fear. Suppose he should give his head a forward nod: We might be bumped out of the elevator car. It was awesome to consider what physical power he must hold, even though his great bulk had made him partially helpless.

But there were my old habits at work again, being overconscious of this man's physical vastness and forgetting momenarily the tremendous intellectual reality that I was viewing. Here was a sage—a great mind.

Maybe you've been told that a sage is always an old man with white hair and a bald spot, a wrinkled fellow whose eyes bug out at you through thick glasses and who never talks except in five-syllable words. Well, that myth was completely banished.

The Sleeper was surprisingly youthful for one who was past middle age. His face was smooth, his lips full, his heavy head of hair was crisp and wavy. I wondered if he groomed himself, but I guessed from the network of ropes, the elevator, and the portable platforms which surrounded him that the smaller persons served him. Later I learned

that this service was a high privilege much sought-for by the two-and three-footers and even by the larger persons.

I must say a word about his eyes. To me they were highly fascinating, not because they were young and clear and so immense, but because in their normal thoughtfuness they were more than a little sad. I couldn't help feeling that the whole languid aspect of his appearance was due to his being filled with the sorrows and troubles of all his people—this rather than the helplessness from his great physical bulk.

Now Dorothy spoke to the mighty man, telling him that guests were here from other planets. His eyes passed over us briefly and a movement of his eyebrows acknowledged our presence.

He spoke with such softness it was like the whisper of faraway thunder filtering into a closed room.

"If you have come in peace, you are welcome . . . Do not be awed at the sight of me . . . It has been my good fortune to absorb much, but I never forget that bigness is never self-made . . . I contain knowledge given me by each person who passes this way. And so do not think of me as one person who has grown wise in a state of isolation. Know that I am the combination of hundreds of persons. Everyone who holds me in respect thereby leaves me a gift—something of himself."

Skinny and I looked to Hi Turner, wondering whether he would dare to answer this modest, soft-spoken speech.

"Your words are very kind," Hi said, "but I'm afraid that out of our slight learning there wouldn't be an ounce of knowledge that you haven't already taken in from some other source."

"If you are thinking in terms of formal education perhaps you are right."

The mountainous creature gazed up dreamily through the endless vertical walls. There was something of an ancient castle in the majesty of his upward view. The tiny chips of light a half mile or more above us were a mosaic of roof-windows close against the purple skies.

"Do you see my stores of books?" the Sleeper asked, looking up at one of the lower ledges. "My helpers are unpacking new works of literature they acquired on a recent space voyage. They read everything to me, and much of it I remember—because I like it. If I didn't relish such things, they would doubtless escape my memory. Don't you find it so?"

HI AND I acknowledged that it was, and the Sleeper talked on.

"But there is much, my friends, that books cannot encompass—that only our lives can surround. No two lives are the same. Each has its own peculiar greatness."

Skinny whispered to me, and there was an earnest excitement in his manner. "Does he mean you and I are great, Blonder?"

"Ask him," I said.

Skinny did it—with the most interesting results. Before we knew it here was my own pal Skinny Davis all absorbed in telling about the up-and-down of high-jumping. It was almost funny.

And the significant part of it was, the five-hundred and fifty foot sage was *interested*. I mean *really*. By George, he was enjoying it. Now you know darned well that he had no intention of getting up on his feet and starting a high-jumping career. But here was a little corner of life that he was rounding out for the first time, and it did you good to see what a vicarious thrill he got out of it.

It made you stop and wonder, does a person like that *have* to be big to have room for all that appreciation of the

other guy—or is it that habit of appreciation that fills him out to bigness?

Hi and I had our turns, too, and all in all it filled us up with new feelings toward ourselves and toward the world in general.

But on top of all this healthy uplift some old troubles soon came bouncing back.

I had almost forgotten our big red-shirted Seventy-five, our original host. When last seen he had volunteered to secure a few more men from our ship to join us in this visit to the Sleeper. Now we heard some familiar voices.

We turned and saw five of our own men descending a trail in the company of the stair-steps.

The five fellows were eyeing the Sleeper, gawking back and forth like parachute jumpers scanning a forty-acre field for a safe place to land.

They were gasping, and I knew they were thinking about the big interplanetary competition.

One of them said, "Oh boy, oh boy, it's in the bag."

Before the day was over all of us went to work—all but Hi Turner. The red-shirted Seventy-five had bent down to whisper some offside information in Hi's ear and soon the two of them went off into a corner for a private conference.

But the rest of us went to work with cameras and yardsticks and calipers and microscopes and flashlights—in fact with every fact-finding instrument we could get our hands on—to record everything we could about what might well be the strangest discovery in our universe.

The five-hundred and fifty foot sage submitted to it and watched us with interest for awhile—perhaps until he had assimilated all he cared for of contest mongers on a wonder hunt—and then he dropped off to sleep.

CHAPTER XIII

Rough House on a Chest

IT WAS a stinking shame.

It happened without warning, and Skinny and I and the five others who had joined us felt as guilty as hell over the deal.

We didn't do it. Not one of the seven of us—or Hi, the eighth—could have dreamed of such insulting action. But we eight *knew* the guilty ones. We'd come in the same *Sky Cat* with them. We had a moral obligation for their actions, and that's why we got ourselves immersed in guilt.

They came uninvited, a rip-snorting squad of them, as soon as they had got wind of the big sleeping giant.

By the time they hit the lower trails and could see the vast mountainous creature under the glow of the chasm radiations, they began shouting and yelping like savages on the warpath. This was their prize. This was the ten million dollar find!

Without one respectful how-do-you-do to the Sleeper they jumped aboard his great body and began racing back and forth, slicing off patches of his clothing for souvenirs, jabbing his flesh for samples of his blood, pulling his hair and bouncing stones at his eyes to get movies of his face in action.

It was cruel, barbaric, ignorant.

Captain Redfife strutted up and down over the big chest, carrying a staff and having his picture taken in the guise of a mountain climber.

Hi was still off the scene on business of his own, and I was sure it must be something grave, for he had asked Dorothy, our hostess, to excuse him and he would return to us soon.

Now night had come on and yet neither he nor his big friend Seventy-five had reappeared.

Dorothy, poor kid, was all torn up over the sudden stampede. She had tried to put things to rights, instantly, calling to the Sleeper that these were not the same men as the ones who had talked with him. He closed his eyes.

Dorothy saw there was nothing for her to do but return to her place among the Stair-steps. Those eleven handsome Sub-Swampers were not at all pleased with these goings on. I wouldn't have been surprised if the males among them had waded into the fracas. That twelve-footer—who, I had learned, was no other than Greekel of the previous night's shadows and voices—might have tossed our discourteous anarchists off as efficiently as any professional bouncer.

But no, the eleven Stair-steps stood back in their soft shoes and softer manners and kept their hands clean of this ugly business.

Meanwhile Skinny and I rolled up our sleeves and went to work. So did the five others who had partaken of the Sleeper's friendship.

The seven of us put up all kinds of scrap—first verbal, then fistic. We ran roughshod over all taboos relating to insubordination.

We were seven against fifteen. Two of them to every one of us, and one over—that one being Captain Redfife himself.

In the end the seven of us took a whipping. But I got in a solid lick at the captain before the ordeal was over. He was trying to play big shot and make himself a military conqueror. He'd raced high up on the chest to get out of the fighting belt, and there he'd stopped, fascinated by a large ornamental wooden button on the Sleeper's shirt.

He was trying to tear it off when I came at him.

"Damn it, why don't you order the rats off?" I yelled. "Haven't you any sense of decency? This man wants to be our friend. But not if we murder him."

REDFIFE snapped back at me. "Blonder, find me a knife. I've got just the souvenir for my Martian brunette—*Joe Blonder, don't you dare—*"

Biff!

I smacked him square on the kisser and he flipflopped down on the mountainous chest. Up he came with a bounce and a rush, fiery mad, and we fought like a pair of demons until a couple of men pulled me off.

As soon as Redfife could take time off from cursing me, he began snorting some more about the button souvenir. Some of his loyal troopers went to help him. The seven of us got together, and made a center rush to storm them in a body—on a body.

Just then came a powerful sneeze that went "Whoooof!" and blew the whole bunch of us off the Sleeper's body. As we were getting up, the low heavy thunder of the giant's laughter vibrated the platform and several of us fell and froze tight to the floor.

The big voice spoke soft words that rumbled around the place and shook it to silence.

"Greekel, will you ask the gentlemen —the *gentlemen*—to assemble on the elevators so I may speak with them?"

We accepted the invitation sheepishly. Everyone's feelings suffered guilt-pangs, I'm sure, with the possible exception of the captain. We all pulled ourselves together so quickly that the fight might have been forgotten except for the Sleeper's mussed clothing. And the captain's persistent braggings.

"I'll get that souvenir yet, you just see," said Redfife as the eleven Stair-

steps herded us into the elevators. "And when I tell my Martian brunette how many men I had to whip to get it—"

At that instant a blast of righteous indignation exploded from a most unexpected source. The cute little five-footer whirled to face the captain.

"Are you referring to me?"

"Dotty! It's you—my Martian—"

But the captain broke off with a gurgle and grabbed his cap and made a gesture of ducking a blow as the girl whirled at him with the fire of her fury.

"You've no right to call me your Martian brunette, or your anything else," she stormed. "I've told you before, that one date was a phony trick someone played on me. You and I aren't even friends."

"Hell, Dotty, don't get all hostile. I didn't know you were here. Honest, I didn't follow you—"

"You'd better not. You'd better make yourself scarce . . ."

The verbal lashing he took from Dorothy was just as satisfying to Skinny and me and some of the others as the sock I'd given him with a fist.

Dorothy concluded her tirade by walking out of the elevator and hurrying away; so that while we were ascending, our dear sweet captain was free to say, "She's a scream, ain't she? You fellows might think she's mad but she ain't. She's wild about me. She likes to have me call her my Martian—"

But no one was listening, for the Sleeper had begun to speak.

CHAPTER XIV

Consider the Pituitary

THE Sleeper had a way about him. He knew he was trying to tame a wild bunch. It isn't an easy job to try to talk in a sympathetic, heart-to-heart manner with any group of strangers. But especially an uncivil bunch like us explorers. We were rapidly turning into a disorganized lot of anarchists, owing to our lack of leadership.

That's why things went so much better as soon as Hi came back and joined us. I saw at once that he was in a tough mood about something. But he pitched in and helped the Sleeper out with some straight-to-the-point answers.

When the Sleeper asked whether we had decided what we would try to take back as our discovery, it gave the captain a chance to brace up and represent us, as a captain should.

But by George at that very moment Skinny nudged me and pointed to the nearby ledge. Captain Redfife had crawled across and was scurrying away.

"I'm gonna follow him," Skinny whispered. "I don't like the way he talked about Dorothy."

So Skinny slipped away, and I didn't blame him.

And now Hi Turner jumped into the breech and became our spokesman. He assured the Sleeper that if we could learn the secret of this strange relation between mental development and physical height, *that* would be our prize finding.

"Have you noticed the radiant dust in the air?" the Sleeper asked. "That is the peculiar characteristic of the soil on this satellite. Whether a man lives above, amid the swamps, or down here in the caves and ravines where the undampened radiant dust glows, it is sure to find its way into his system. Everyone absorbs quantities of it through his food."

Hi Turner followed him with questions, for the Sleeper insisted that he was willing to give all of these "gentlemen" the benefit of his knowledge.

As nearly as I could grasp the ex-

planation, this particular radiant material—which remained nameless to me because of my inability to grasp the chemical symbols involved—would invariably make contact with the pituitary gland.*

Beyond this contact, the Sleeper explained, there was much conjecture as to just how and why the activity of the brain should exert such a perfect control over the radiations in the neighborhood of the pituitary, and the consequent stimulations of that gland.

I could see that Hi Turner was getting it. Probably he'd be able to carry the very words back to Dr. Blyman, I thought, if he chose to do so.

"In spite of some unsolved mysteries," the Sleeper said dreamily, "our doctors have proved that here on the Swamp Satellite it happens: The brain comes to act as a governor upon the pituitary or growth gland—through the medium of this radiant material which has centered in this region of the brain."

"But how," Hi asked, "can the hardened bones manage such a phenomenal growth?"

"Here, again, is a mystery of our radiant dust. Its magic properties, applied to the human body, result in a rapid growth of cells. We enjoy a great flexibility of bone structure. To you the swiftness of this growth would seem unbelievable."

"Do people ever shrink?"

"Frequently. Some persons have struggled to acquire a certain size in order to attain a certain goal. This goal is often marriage, for our laws require that we marry persons who are near our own size. A generation or two ago there was the odd case of a woman who undertook an ambitious program of literary studies until she attained a twelve foot stature. This enabled her to attract a certain fifteen-foot man and she won him. But having won her goal she quickly lapsed into shamefully sluggish mental activity. A few years later she was a three-footer being carried around in the pocket of her fifteen-foot husband."

Hi Turner said he had one more question, and I'm sure he didn't know he was going to touch off a powder keg among the members of our party.

"How," Hi asked, "would you suggest that we carry a proof of this wonderful phenomena back to our competition judges? Could we borrow some of your citizens—large and small—to use as evidence?"

The Sleeper replied with a question, "How long will you be here?"

"Only a short time. Not over a week of satellite days."

"That will be long enough. Just take yourselves back to wherever you're going," said the Sleeper. "You'll be taking on new sizes before you know it."

CHAPTER XV

Pituitaries in Storage

THAT little bomb shell was the opening salute of a *Sky Cat* panic.

The following dawn on our way back to the *Sky Cat* the nervous jitters were sure-enough on us. The unified spirit that should have gripped us was completely shattered.

It was a strange panic—a dread of the unknown. Perhaps that fight on the Sleeper's chest was only a symptom of our taut nerves. There was to follow a period of frequent fighting and bickering.

Were we doomed to change sizes? Was there no escape?

* The pituitary, a small round gland within the cranium, is a regulator of the nutrition of bone and other tissues, and therefore the ruler of one's growth. Abnormal height results from excessive functioning of the pituitary gland.—Ed.

Some of the men argued that the Sleeper must have been lying. A few tried to convince themselves that such a mammoth creature couldn't be: that what we had seen had to be a gigantic mechanical trick. But others simply swore and grumbled for letting themselves in for this misery.

At the ship the pandemonium ran riot. Dapper little Dwight Blackwell couldn't find out what it was all about until he dug up his overflowing billfold and paid someone to give him a calm account.

Meanwhile everyone tried to find Dr. Blyman. Everyone wanted his private and confidential opinion on the possible effects of this radio-active dust upon our pituitaries.

Dr. Blyman wasn't to be found. The engineers and the cook supposed he was still in his laboratory burning his eyes out over the microscope. But someone else said that he and the two Thinning brothers had gone out to gather up some more raw material for his experiments.

"As if two big heads aren't enough," the informant added.

"Two?" I gulped. "Where'd the second one come from?"

I got my answer later from Hi Turner. A second specimen had been obtained, he said, by a simple process known as murder.

Hi was terribly upset. He said it just went to prove that when you start something you never know what it may lead to. He had plunged a bayonet into a green man's heart because it seemed the right thing to do at the time.

"But now look what happens. Dr. Blyman makes the mistake of thinking that all these swamp dwellers are killers, and therefore deserve to be killed. So being in a mad frenzy to secure more pituitaries for his experiments, he and the Thinning brothers went out and killed a man."

"Green or blue?"

"Neither. He got a Sub-Swamper—of all the boneheads!"

"Damn! What will our Sub-Swamper friends say when they hear—"

"A few of the officials already know," said Hi. "That was what Seventy-five was telling me about. You remember the letter Dorothy brought him—and he decided to have us stay down in the chasms while he sent for some other *Sky Catters* to join us? That was because there were Sub-Swamp officials out gunning for the killers of their man. The poor fellow was out gathering wood. When they found him he'd been killed by a crushing blow on the back."

"And his head?"

"It had been severed and taken."

I shuddered. From the sound of all this it would seem the Sub-Swampers would probably come right over and destroy us. But Hi said no, the officials had not guessed us guilty. They had attributed the crime to the green and blue swamp rovers, and had struck out to the east in search of them.

"You see it's very clever of Blyman and the Thinning boys," Hi said, "to crush their victim with a club. So far as I know, only our seventy-five foot friend has guessed the truth. Fortunately he's intelligent enough to discriminate between people."

"You mean he doesn't blame us?" I was groping for an escape from the weight of more guilt. We *Sky Catters* had come together. Could any of us be exempt from the charge of murder?

And where was Dr. Blyman now? Out in the forest searching more human material for his experiments?

WHY hadn't this matter been thrown into our common court? Why hadn't we been brought together to pass judgment on it? *Where was our leader?*

I knew the answer to that one. When last seen he was slipping away from the council of the sage to pursue a cute little five-footer that he claimed as his Martian Brunette.

Darkness was on us before the doctor and his two compatriots, together with Captain Redfife, returned to the ship. They were all four annoyed to find that Hi Turner and I were waiting to question them.

"We've been away on business," the doctor snapped.

"Official business." Captain Redfife's face reddened. "The doctor and I will put this prize over while the rest of you sit around and worry about it."

"I trust you aren't planning to gather in any more pituitaries," said Hi, eyeing the doctor steadily.

"As far as the microscope is concerned, I have all I need. But a few live exhibits would make an impression on the judges."

"We're a bit short on guest rooms here," said the captain, eager to keep himself at the head of this clandestine maneuver, "so we've found it expedient to place our exhibits where they'll be handy whenever we're ready to push off."

"And may it be soon," Dr. Blyman snapped.

"It will be," said the captain in the manner of a man of destiny. "Tomorrow we'll pull this ship out of the mire and go."

"That easy?" said Hi Turner. "You must have a miracle up your sleeve."

"How deep are we by now?" Redfife asked.

"Twenty-five feet."

"That's fine—er—" Captain Redfife stumbled. "What I mean is, we'll find a way out, don't worry. See you tomorrow."

"I don't think you can pull this ship out tomorrow," said Hi Turner coolly. "I don't think you'll get it out in a week!"

"In a week!" the captain snorted. "A plague on you, Turner."

Hi gave a faint smile, and there was irony in his tone. "In a week a plague may be on all of us, Redfife."

CHAPTER XVI

The "Brain-Hop" Plague

IT HIT me first.

I had risen early and gone to work writing my reports before breakfast. Soon I noticed that perspiration was pouring over my forehead and dripping from my wrists.

My arms began to stiffen and pull. Heat waves swept over me. My joints grew tight and sore. Every bone in my body began to draw. *I was contracting.*

In an hour it was over, thank heaven. A welcome restfulness came over my body and I knew that this was normal —my new normal.

Physically I felt fine. In spite of the shock of this metamorphosis, it had come and gone leaving no echoes of pain or fatigue.

But look what had happened to me.

I did look—in the mirror—and was dumbfounded. My clothes were at least two sizes too big for me. My shoes were loose. My cap dropped down on my ears.

It might have been worse, I suppose. According to the yardstick I had shrunk from five-eleven to five and a half.

Ye gods—that was what my brain had done for me! It was silly, at a time like this, for me to regret that unfinished trigonometry course, but that's what I did. To think, if my brain had worked just a little harder I'd have held on to those last precious five inches of height.

I'd have saved myself many a stitch in alterations—and a world of humiliation.

I managed to be sitting at the breakfast table when the others came in.

This was unusual for me. Some of them looked at me twice. But while I suffered agonies of suspense, they said nothing. Before breakfast was well started I wished they would say something, to get it over with. Once I was on the verge of blurting the dreadful truth. But at that moment someone else mentioned the "Brain Hop"—and I fell silent.

"We've got to do it," one of the engineers was saying. "We've got to get this ship up and take off before the 'Brain Hop' catches us. We'd be a pretty sight coming back to civilization in new sizes."

The engineer rose impetuously, and I noticed that he was pale and his forehead was covered with perspiration.

"Won't you finish your breakfast?" Hi asked.

But the engineer smeared his hand over his forehead and tottered out.

"He's got it," I gasped. "That's the way it starts—er—"

I broke off.

"How do you know, Blonder?" someone shot back at me. But no one paid any attention. Several were already at the engineer's side, convinced that there was something wrong with him.

He admitted two or three friends to his room. The rest gathered around the door listening or remained at the table just waiting dumbly.

Within the hour the engineer emerged—*seven and a half feet tall.*

It was amazing to see how the group took it. Everyone stood around looking up at the elongated specimen and you could see it was a look of admiration.

Yes, admiration and envy. In spite of the awkward array of skimpy clothes, the engineer was a towering, dignified, stately figure.

THERE was a mingling of envy and distrust and annoyance in the countenance of Captain Redfife. His florid face twisted with confusion. Once he started to mock. Three times he tried to break in on the engineer's monopoly on our attention to order us to our work.

But the admiring eyes stuck on the new tall man and there they feasted.

"That bird has brains," Hi Turner whispered to me.

I had just risen from the table with the intention of slipping away. At Hi's words I gulped and my voice stuck. He gave me a funny look that turned into a scrutinizing gaze.

I reddened, and he knew.

"Sorry, old boy. I didn't realize—" The compassion in Hi's eyes made me look away. He added quickly, "Come here, Blonder. I want you to help me with some work. It's urgent. *This* way."

He led me off while the others were still gazing the other way.

I'll never forget that favor. I'm convinced it saved me some foul blows; but Hi was quick enough to ward them off.

By the time I emerged from my work room, several hours later, the Brain Hop had begun to hit all around me like snow flakes. Several others had shrunk more than I.

Two of the men had shrunk to the miserable height of less than three feet and they were terribly cut up over it.

Another engineer had emerged as a giant—all of eight and a half feet tall. Otherwise no more highly developed brains had been revealed.

Everyone was watching everyone else to see who would get it next—and who would expand and who would shrink.

The day passed and the ship sank to a depth of twenty-eight feet. This put the nose under, and hid all but the top of the word *Sky Cat*. From now on, according to the engineers, it might be expected to sink a little faster.

And so—how do you think we spent the night? Building new swamp rafts and derricks and applying our portable atomic motor to the derrick ropes?

No, indeed. We spent our waking hours reading, studying, working problems in mathematics, and philosophy.

If that sounds foolish I can assure you it also looked foolish. Especially so when you'd stop to watch several of the unchanged men—the arrogant Captain Redfife, the dapper little Dwight Blackwell, the doctor, and others.

The captain would mumble over his books for a stretch of two or three minutes, and then steal a glance at Blackwell or the doctor or Hi.

The captain was scared. He was deathly afraid he wouldn't turn out to be as tall as some of his men. The men knew it. Some of them were even fearing they *would* outgrow him, knowing that if they did he just wouldn't be able to stand it.

Most of all, he was watching Hi Turner, who now sat at the checkerboard for the first time since our original take-off. It was a rare sight to see Hi not reading at this hour.

"Aren't you concerned about your brain, my friend?" I inquired.

"All my books are in use," said Hi with a grin. "Is there any way to figure out from checkers how to get the jump on a sinking ship?"

CHAPTER XVII

Hi Grabs the Reins

HI TURNER scooped the checkers into a box and dashed them into the wastebasket. He strode to the office door and rang the alarm bell—three long rings.

Books and magazines dropped, doors banged, footsteps pounded through the hallways, everybody in the ship came storming pell mell into the dining room to see what the emergency was all about.

Did I say that everybody came? I must make an exception of Captain Redfife. The captain didn't make it. He fell on the way in. Something in the shape of my foot tripped him, and something about as heavy as a desk drawer bumped him over the head as he fell.

So the captain went to sleep at the very moment of the uproar and I heaved him into his bed and closed his door before going into the dining room to join the assembly.

Why, you may wonder, did I happen to be ready for that alarm? My answer is simple: I knew that Hi Turner never played checkers.

But there he had sat, long after I had beat him three games, playing a senseless checker solitaire. So I knew there was something boiling in his brain and it was time to get ready for fireworks.

What's more, I knew that whatever Hi Turner was cooking up, he'd have a better chance to serve it hot if Captain Redfife was out of the picture.

So all at once there we all were assembled around the dining room table, with Hi Turner standing at one end and everybody waiting to know what's up.

"We've reached a critical period," Hi began. "There are a dozen emergency jobs hanging over us and they've got to be done. By heavens, they're going to be done. Captain Redfife, I call on you, in the name of these men—"

"Hsst!" I whispered, just as Hi broke off, looking around for the captain.

I jumped up and said, "The captain

has gone to bed, Hi, but he said you knew what needed saying, so he'd leave it all to you."

Hi gave me a fierce questioning look and I narrowed an eye at him.

"Are you sure," he said dubiously, "that the captain won't—er—change his mind and join us?"

"I'm sure," I said stoutly. "It's all yours."

My words took the brakes off, and Hi Turner plunged into his job, full speed ahead.

"I'll go right down the list, gentlemen, and you'll each take your assignment. It is now an hour before daylight. By sunset tonight we want a report from every man on every job. First, Dr. Blyman, your laboratory—"

"I'm working there day and night," said the doctor sharply. "The captain knows what I'm doing."

"You'll make a public report on your progress, Doctor," Hi stabbed back at him. "Every one of us deserves to know what you're doing."

BY GEORGE, the gang cheered. That was good. It proved that Hi had welded us into a group right on the start.

"Next, Joe Blonder."

"Yes, sir," I said.

"Your friend Skinny Davis has not returned to us since he walked out on our party at the Sleeper's. You've assumed that he's still visiting down in the chasms. You'd better check up. Whether he's lost or just being sociable, we need him here."

"Yes, sir."

"Next, Dwight Blackwell." Hi paused to watch the dapper financier draw himself up with pride and dignity. It was a question whether this important mysterious little man would take an order as an affront or a compliment. Hi banked on the latter. "We want you to continue your vigil with your binoculars and the ship's telescope. If you see any moving figures, large or small, near or far, estimate their positions and register them on a chart."

"Very well," said Blackwell respectfully.

"Is the rumor true," Hi continued, "that you sighted some movement recently?"

"Right. There were a dozen or more dots moving on the north swamp horizon during the late afternoon. I lost sight of them toward sunset. If they're any nearer when daylight comes, I'll report at once."

"Good," Hi said, and there was another light round of applause. The old *esprit de corps* was coming back like magic.

"Dr. Blyman, here's another matter to lay at your door."

Hi tried to overlook the doctor's sullen manner and his glare of hatred. The crowd grew silent and tense, as if expecting the doctor to rebel at any further interference in his private professional doings.

"Dr. Blyman, neither you nor the captain has made public a certain very important fact about the three prisoners which you have captured in the interests of your pituitary studies. Are these three persons green swamp men of the killer type? Or are they tan-skinned members of the sub-swamp civilization?"

"The captain knows the answer," Dr. Blyman answered mockingly.

"*We* deserve to know," Hi snapped his cool words like an easy snap from a dangerous whip. "This whole party is responsible for your course of action. We need to know what these three people are."

The doctor came back with a cold defiant answer. "I'm the scientist of this party. I'm not concerned with

the pigmentation of those three prisoners. To me they're simply three living pituitaries. That's my full report."

Hi Turner turned to the two Thinning brothers. "You two men helped with the doctor's capture. Since the green swamp men are known to be in the neighborhood, you realize that it isn't safe to leave your prisoners bound somewhere out in the forest. The doctor wouldn't want them turned into dead pituitaries. Accordingly, I'm ordering you brothers to bring them here to the ship as soon as possible after daylight."

The Thinning brothers nodded an assent, in spite of dagger glares from the doctor.

The response to the next order provoked considerable mirth. It concerned the mission of the pilot, who had been sent off somewhere in the space lifeboat. Hi observed that since the lifeboat was part of the ship's standard cruising equipment, the party deserved to know where it had gone and why. But Hi presumed that we would have to wait until the captain met with us to get any light on this matter.

One of the engineers volunteered what he knew of the matter: the space lifeboat had been serviced for a round trip to the nearby planet, Efde-Aurus, and could easily have been back by this time.

IT WAS at this point that Blackwell brought down laughter by admitting what he knew of the business.

"The captain has a foolish heart. He got lonesome. He needed an old friend to liven up the party and he remembered that when he last heard of her she'd gone from Mars to Efde-Aurus."

The dapper little financier grinned sheepishly at the cynical gurgles. He added, "The captain said he was doing it for me, being afraid I was getting bored. But I assure you, gentlemen, I couldn't possibly be interested in the captain's Martian brunettes."

Someone mumbled that that was what the captain had called the sub-swamp girl. But Hi rapped for order and brought the party back to sterner business.

"Blackwell, if you want to do a real piece of service for this expedition," said Hi, "you could lend us the money to give to the sub-swampers."

"Give to them?"

"To help clear accounts," said Hi, and everyone stole a glance at Dr. Blyman. "In our haste to explore the forces back of the Brain Hop, we made a serious mistake. We killed a man who was one among our new-found friends. I know that—"

"All right, Turner, kick me in the face again," Blyman blurted hotly. He rose and stormed to the door. There he whirled and flung back at us, "You know damned well that *I* hadn't been down in the chasms rubbing elbows with your sages. *I* didn't know this bird wasn't another swamp demon—"

"If there was a mistake," Hi said forcefully, "we can help make up for it by paying—"

"There was a mistake, all right," the doctor snapped. "The mistake was bringing you along."

"The mistake," said Hi, "was killing without cause."

"I've been known to kill *with* cause, Hi Turner!" the doctor blazed with complete loss of temper, and the threat of murder was hot in his eyes. "Don't you forget it."

He banged three doors on his way to the laboratory, and that was the last we saw of him for some time.

But the sanity of the meeting was at once restored as the dignified little financier rose and said, "I'll lend what-

ever amount is needed, Turner, and I'll go down to the chasm with you to help make explanations."

CHAPTER XVIII

Head Bumps

THE sun came up to the roar of blasting. The engineers were up to some new tricks at long last. Before the pre-dawn assembly had adjourned there had been a hot round of discussion over the various untried schemes for recovering the ship.

The engineers had agreed to undertake the scheme of their eight-and-a-half footer. (His suggestions had all been overruled before the Brain Hop had sent him towering upward.)

The plan was to shift as much of the ship's weight as possible to the rear, and to concentrate the derrick lifting on the fore end of the ship. If the nose could be freed, then some swift excavating could be applied at the sides, supplemented by blasting at the rear. If the hull could be loosened enough to yield in the slightest to a sideward rolling pressure, then would be the time to risk everything on a chance application of the ship's own atomic power.

Already the engineers were trying their luck with the blasting idea. But as I hurried through my breakfast I couldn't *feel* any results. The ship was planted like an immense hollow rock, and the explosions didn't jar it in the least.

My first job was to find Skinny.

I pocketed my pistol and made ready to strike out. As a last errand I checked up on the captain to be sure that this bright pink dawn found him in merry good health.

He looked as if pink elephants were keeping him company.

Dr. Blyman was talking with him so I didn't go in after all. I paused outside the open door just long enough to get a neat little earful. I had supposed the captain would explode when he heard about Hi's assembly. Not so. The captain wasn't even listening. He was too busy talking about himself.

"It was the worst case of insubordination I ever witnessed," the doctor growled, as he tried to enumerate Hi's orders.

But the captain, not hearing, went right on with, "I still can't figure what it was that fell on me. It musta been as heavy as the swamp man's steel club, though I can't locate any cleat marks. But this I know for a fact, it staved off the Brain Hop."

The doctor was suddenly all ears and so was I.

"Staved it off, how?"

"I don't know. But it sure as hell did. I know, because this was the second time it happened just the same way."

"When was the first?"

"The time I was fighting with Skinny Davis."

"You *fought* with Skinny?" the doctor gasped. "Don't you ever make use of your authority as captain? Why didn't you throw him into solitary?"

"It was over a girl," said the captain. "I'd followed her up from the sub-swamps and he same taggin' after me."

"All right, never mind that. The thing I'm after is your dope on the Brain Hop."

"It was comin' on me, I know it was," said the captain. "I mean I could feel it in my bones and I was sweating all over. And each time something hit me over the head and *stopped it from coming on.*"

"In other words, you think the traumatic effect of the blow on the cranium

postponed the metamorphosis?"

"All I said was, the bump on the head stopped the Brain Hop," the captain growled. "But here it comes again, sure as shootin'. I can feel it in all my joints. Quick, where's something to hit me with?"

THE captain came bounding out past me, looking around everywhere and picking up everything he could lay his hands on. He smacked himself over the head with books and flashlights and saltshakers before the doctor could grab him and get a word of explanation.

"But I've got to postpone it," Redfife yelled. "I can't be swelling up like a mountain, considering the size of that space lifeboat and how loaded it'll be—"

"Sssssh!"

"All right, this ship, then," the captain snarled. Noticing me he moderated his tone. "That's what I meant, anyway. This ship. Look how I'd crowd it if I'd take on sixty or seventy feet. . . Well? . . . Go ahead and say it, Doc. So you don't think I've got brains enough, huh?"

"I didn't say anything," said the doctor.

"All right, just wait. You didn't see that big human hippo down in the chasm. You don't know how big they grow. I'm not talking about small potatoes like Blonder here. I'm talking about—"

"Don't go off the deep end till you start swelling," the doctor warned savagely.

"What do you mean?"

"I mean I wouldn't be talking too much till you look around at some of your men. Not to mention present company, what do you figure will happen to brains like Hi Turner? I'm not ballyhooing for him, you understand. I'm just warning you. Whatever height you hit, I'll bet ten dollars he'll go a couple feet stronger."

"He'd better not!"

"How you going to stop him? Hit him over the head?"

"You've got to help me, Doc. We've got to think this thing out. Quick, hit me over the head before things go blooey."

The last I saw, the doctor was blamming Redfife over the head with a shovel he'd grabbed out of the tool closet, hitting him good solid licks like a true friend.

Several hours later I came upon Skinny Davis.

I had been upon the point of giving up the tortuous hiking, to go back and try to borrow someone who could pilot the plane. I had just dropped down on a log to rest and debate the matter when a little creature hopped up on the other end of the log.

It might have been a two-foot woodchuck or fox or bobcat; but it was a two-foot Skinny.

I needn't tell you how he felt. Put yourself in his place and see how you'd like it. Think of yourself as the high jump champion of your state, the pride of your home town and your school and all the alumni. Imagine that high jumping has been just about the biggest thing that ever came into your life, and now you suddenly find yourself reduced to a height of two feet. How do you like it? Well, that's just the way Skinny liked it.

The poor guy had discarded three-fourths of his clothes and bundled himself up by tying the upper sides of his trousers over his shoulders.

He looked up at me sadly and said. "For gosh sakes, don't laugh, Blonder. I couldn't stand it."

"I won't laugh."

"Don't even talk. Don't mention anything about taking me back. I'm

not goin'. I'll spend my life right here in the swamp. No, don't talk—please."

"There's something I've got to say pal . . . Have you stopped to think how lucky it was this didn't happen to you sooner, before you had it out with Redfife?"

"Did I make an impression on that damned girl thief?"

"He said you knocked him out."

SKINNY gave a funny little grin and came over and sat down by my knee. His talk took on a cheery note.

"Ten minutes after I smacked him over the head with a good sized tree I began losin' size and strength. Gee! That does feel good, come to think of it. Somethin' like gettin' salvation just before you check in."

CHAPTER XIX

Gunfire Over the Swamp

IN some ways my pal Skinny was a remarkable guy. Not everyone would have the guts to do what he did —that is, to fight it out with himself and decide he'd come back and face the music.

The amazing thing was that while he was thinking his way through, facing himself honestly, he got a strange feeling that he was beginning to grow.

"I can feel it clear down to my toes," he said, "By Jupiter, I *am* growing. Maybe not much, but—Blonder, do you wanta know something?"

"Sure."

"I've dodged brain work all my life. That's a fact. High jumping came so easy, and the coach always managed to push me through my courses. Do you know, I think I've got a brain—I mean a good one, not a two-footer—only I just never bothered to use it."

We did some high-powered dodging on the way back to the ship. There was death among our swamps at last. That death was within twenty yards of us once, coming through the water at a good swimming pace.

I estimated that there were fifty of the ugly green and blue creatures in that particular bunch. I didn't have time to count, for the nearest half dozen of them were swishing along through the brown water at a good swimming pace.

It was these six who were only sixty feet from us as we passed. They saw us, all right, and the two small ones immediately fell back, while the others —six-footers and one eighteen or twenty-foot giant—put on a burst of speed toward us.

Across their backs were the gleaming metal clubs, which they carried without effort. From the giant to the dwarfs they were heavily muscled creatures, almost naked, as much at home in swamp waters as waters moccasins.

These details came to me in a glance, for there was no tarrying on our part. We broke into a cross-swamp race. And I'll bet no one ever saw a two-foot man who was any stronger on the jump than Skinny Davis.

Throughout the next breathless fifteen minutes I could catch occasional glimpses of the gun turret atop our ship and I wondered whether Dwight Blackwell was up there keeping watch, or whether he had gone with Hi on the mission of good will to the chasms.

Someone was there.

At any rate a gun flashed from the turret. Skinny and I dropped down. Some distance back of us the eighteen-foot swamp man, who had just clambered up out of a pool, was looking for us. He was deep green and wet like a monster frog.

A sudden slush of deadwood and water jumped up within a tree's length

of him. He leaped as the spray caught him, and began charging around madly, apparently looking for his lost club.

One of the six-footers grabbed him at the knee and the others tried to cluster around him for protection. He was in the act of battering them down with his nail-keg of a fist when the second bullet flashed from the ship.

It caught the bunch of them squarely.

AMID the dull echoes of gun thunder, Skinny and I listened for screams or moans. But we didn't hear any. And I wasn't surprised, for that second bullet had caused a small volcano of mangled blue and green torsos, heads arms and legs.

By the time we reached the ship the wave of oncoming swamp men had been turned back. The guns had done effective work on the giants, and that was enough. The smaller fellows hadn't dared to come on by themselves. Many had turned tail and swum or crawled back to the northward, though some were no doubt still lurking, hidden.

Before sunset the pilot came back in the space lifeboat. He was alone, and my first impression was that he was plenty sore over his wild goose chase.

The captain ordered that the lifeboat be serviced at once to be ready for another hop at an instant's notice.

"Sorry," the pilot said to me, out of hearing of the others, "that I failed you and Hi on that sunset appointment a few days ago. But the captain took a freak notion to give me orders."

"It's okay," I said. "But keep in touch with Hi. He's giving the orders now."

"That's jolly," said the pilot with a spark of hope in his eyes. "How does the captain take it?"

"He's blind to it. There hasn't been any mutiny or any official transfer of authority. The captain just let himself get closed in with his own interests, and the party has gone on without him."

"Count on me," said the pilot.

Other than his search for the Martian brunette the pilot had performed one official errand which deserves mention.

He had gone to the Efde-Aurus representative of the interplanetary competition with a message from Captain Redfife requesting an extension of time. As per the captain's orders, he had stated that some startling evidence was being collected by our expedition, but that our ship was imprisoned in a swamp and we might be delayed in returning. Could we, under those conditions, have an extra week?

The representative's answer was no. At least *some* evidence of our discoveries must be in official hands—not on Efde-Aurus, but on Mars—by the hour of the deadline. Otherwise we would be left out of the competition.

Which meant that we had only one more day, at the most, to unmire ourselves and take off for a full speed race to Mars.

One day to go!

When that news was relayed to the engineers it was reported that the eight and a half footer fainted. Working day and night those boys had lost all sense of time.

The pilot could see that some terrific changes had come about during his absence, and he was shocked to discover that he, too, might be struck by the Brain Hop.

But the pilot was most chagrined to learn that the Martian brunette—the lost dame he'd been searching for all over Efde-Aurus—was already here.

"What a sap that makes me!" he groaned. He sank into a chair and broke into a cold sweat. Ten minutes

later the Brain Hop was on him full blast.

"Some hop up, some hop down," Skinny murmured philosophically. "It looks like the pilot's coming down to keep me company."

Soon after dark the whole group came in for another general assembly. And for once every living one of us would be present, as soon as Blackwell came down from his watch.

In addition there were three visitors in luminous clothes and puffy dough-white shoes.

CHAPTER XX

Dibs on the Lifeboat

SO THESE were the doctor's three living samples: Exhibits A, B, and C of this satellite's pituitary phenomena.

The stately twelve-footer was Greekel, the top man of the eleven Stairsteps. The little two-footer was the bottom man. The middle one was Dorothy. You should have seen the captain falling all over himself trying to be sweet on her!

"Disgusting!" Skinny whispered to me.

"Has she seen you yet?" I asked.

"Not if I can help it," Skinny mumbled, adding that she had passed him twice, but both times he'd ducked behind a chair.

"Get your nerve up, Skinny. Better face her."

"I will as soon as that damned captain get out of the way. I'm just the size he likes to kick."

The captain rose and tried to start things off. He got lost in the first sentence, and stood beaming at Dorothy, who did her best to ignore him. He recovered himself and called upon Hi Turner to report on the progress.

Hi summarized the situation in a couple of nutshells.

"First, to make our deadline," he said, "we've got to shoot the lifeboat on its way tomorrow with some convincing evidence. Dr. Blyman tells us that his laboratory specimens are ready, and that in addition he desires to take living proofs, one to illustrate each extreme of our discoveries."

"*Two* living proofs?" the captain interrupted. "You mean *three*."

"I hasten to add," said Hi, "that the captain insists on *three* living proofs. His scientific interests in this matter need no comment, I'm sure. The lovely young lady between the two extremes is to be the third."

At this thrust Skinny, parked under the arm of an overstuffed chair, gave a loud, "Ahem."

"Suffice it to say," Hi went on, "that the captain himself must go, since the rules require him to be present when the evidence is presented. In addition, Dr. Blyman will be needed to make the necessary explanations.

"As for the rest of us—we stay."

The group lapsed into hard silence as Hi opened this second nutshell.

The space lifeboat, Hi argued, would be overloaded with its party of five, plus the doctor's lab things. The rest of us must hang on here.

How long?

That depended.

"Until you guys get the ship up," the captain cracked.

"Is that so?" one of the engineers snorted angrily, looking at the blisters on his hands.

"If you don't make it soon I'll send for you," said the captain.

Talk about your hollow promises. That one echoed out an awfully empty barrel and we answered it with a groan. How long would we be stuck here? What could we do about it if the cap-

tain suffered a lapse of memory? And if there should be any prize money, how far and wide could it float before we ever saw any of it?

There was a hot round of argument and several of the group demanded to know whether this was Hi Turner's idea or the captain's. Hi answered that it was the captain's, but under the conditions he was forced to indorse it. Time was short and the spaceways were full of distance.

"The lifeboat is the only thing that can pull our expedition out of a hellova mess," Hi fired back at us, heedless of angry faces. "None of you hate that mess any more than I do. Part of it has been bad luck, part due to loafing and bad management. But that's water under the bridge. We've got to send the lifeboat, the quicker the better."

Little Skinny Davis piped up with a warning that made everyone stop and think and stare.

"That lifeboat's not very big. How can the doctor and the captain go? Room for five? Maybe. But suppose they have the Brain Hop on the way. Who knows whether the ship'll hold 'em?"

IT WAS a good warning, and afterwards some of the men declared they could see Skinny grow a little when he was thinking it up. In fact, they brought up the incident as an example of good clear headwork that doesn't have anything to do with book learning.

Skinny saw that he had scored with his warning, and he followed through. "We oughta send no one that hasn't already Brain-Hopped."

"Brainless midgets like you, I suppose," the captain snarled. But it wasn't a popular thing to say. Everyone knew that Skinny could run the lifeboat as well as anyone.

All this pow-wow had electrified the doctor until he was ready to blow a fuse. He'd been sitting there beside the hall door that led to his laboratory, looking like a mad man imprisoned on a powder keg. Now he gave a snort.

"Don't worry your heads about the Brain Hop. I've got that matter in hand. If you're through with your confounded rag-chewing, I've got work to do."

"One moment," said Hi. "If you've pulled any secrets out of those cream-colored powders, give us the dope."

"*I've* got the dope. *I'll* be on the lifeboat. That's all that's necessary."

"Suppose," said Hi in a cold tense challenge, "that you and the captain should both swell into twenty-footers—en route."

"An unlikely circumstance," the doctor snapped, and Captain Redfife grew red with resentment, evidently taking it as an insult to his brains.

"Our expedition is at stake," Hi said savagely. "What *would* you do if you'd both swell—"

"Give me a guinea pig and I'll show you," the doctor answered icily. "Give me a swamp rat, or a monkey, or a—" He hesitated, and his wild dangerous eyes dwelt upon the two silent Stairsteps, the twelve footer and the two footer. "Give me any living pituitary—"

The voice of Blackwell, calling from his observations post, broke the discussion off short.

"Could you send a scout up here?" his voice sounded down to us, crisp and dignified. "I've sighted some figures in the dark distance."

A pair of gunners went up and the meeting went into recess. Everybody welcomed the chance to get around some food and drink, unless it was Dorothy. The captain brought a tray to her, but she was as unresponsive as an ice statue. Something besides the

captain had chilled her, and I thought it was the voice of Blackwell.

Blackwell hadn't seen her, as yet. He had no doubt heard that the captain's "Martian brunette" had been discovered among the sub-swamper Stairsteps. But her path and Blackwell's hadn't crossed.

During the recess Skinny and I had the good luck to slip into Doc Blyman's laboratory, and what we saw and overheard was enough to make us dizzy.

But right away the recess was over and Hi called us back to order. It would soon be dawn.

THERE was a new bump on the captain's head and I knew he was working overtime these hours to stave off the Brain Hop. Soon it would overtake him. In fact, according to Greekel, it was due to catch all of us by this dawn.

Well, the doctor and Hi were both beginning to perspire at the temples. Everybody else had gone through it except Dwight Blackwell and the captain.

Hi held the attenion of the assembly while he ran through a summary of the plans. Then he put the pressure on Greekel and the little two-footer and Dorothy to make sure they were signing up to make the trip, for better or for worse.

Greekel and the little fellow said yes. But I saw there was trouble coming as soon as Dorothy got up to argue her case.

A whisper from beyond the dining room door caught my attention. It was Blackwell. I slipped out.

"What's happened?" Blackwell asked. "Has a ship come?"

"The lifeboat came back," I said.

"What's my daughter doing here?"

"You mean the captain's Martian brunette? She came from the sub-swampers."

Blackwell went white. He listened.

Dorothy had the floor and she was stating her case in no uncertain terms. She would be willing to go back to the inter-planetary committee and testify to the truth of our discoveries here—under certain conditions.

First, she would not go unless Captain Redfife dropped all of his outlandish talk about her. And secondly, she must be brought back here safely before any of her old social set found her and tried to keep her: for she had run away from them and all their sham, in spite of her wealth and her aristocratic parents—

Dwight Blackwell stepped in to defend himself. "Young lady—"

"Dad!"

"Young lady, if you're living down in these chasms, go get your things packed. You're going back with me."

Captain Redfife squealed like a pig under a gate. "The boat won't hold *you!*"

"I own a share in that boat," the dapper little man snapped. "We'll make it hold me. Dorothy, get your things."

CHAPTER XXI

Battle at Dawn

THAT cute little five-footer had a way about her. Before the guns began firing that morning, she led her father off to the sub-swamp city for a quick visit before the space lifeboat was due to take off. It was dangerous, cutting across the swamps. So I was glad to see Skinny load himself down with a pistol and some ammunition and go jumping along after them.

Daylight revealed a wide wave of the swamp enemy coming toward us. The previous day's clashes must have mobilized the whole region. Greekel

estimated there were twelve hundred, not counting the scores of midgets. At least a hundred of them towered in the twenty-foot range. This, according to Greekel, was the l a r g e s t mass of swampers ever seen at one time.

He sharpened his bayonet as he looked out over the misty landscape. It was an ominous sight to watch them edge their way along like so many alligators, now creeping, now swimming, now disappearing entirely under the slime and brush. What sort of men were these?

Greekel had an answer. It was a simple l e g e n d without any proper names or dates: They were human beasts.

Where had they—or their ancestors —come from?

From some solar planet, it was rumored: a planet that had been infested with a breed of men who made it their business to kill and destroy. The last of the killers had eventually been loaded up and "dumped" in this region of space. These swamp beasts were their descendants.

Were the original killers green, blue, and yellow? No, such characteristics had developed with this climate. It was not a result of swamp life, *but a result of their own cruelty.*

Their colors were thought to vary with their cruelty, just as their size varied with their brains. But Greekel couldn't say which of the colors signified the most bestial nature, for any of them was a symbol of murder.

It was a fearsome sight to see this wave of death oozing toward us. When they were two miles away Greekel urged us to desert our ship.

"You'll be safe in our city in the ground," he said. His nerves were good but he was afraid we might underestimate our peril. The little two-footer was pacing like a tortured bobcat.

I noticed that their terrible agitation was a knife stab to Doc Blyman, who was hurrying his preparations to go. Every time the doctor threw another package together he whirled to make sure his "live pituitaries" were still there. He was running a race against time, and his hands fumbled, for all at once he had begun to gather size. I heard him mumbling oaths every time he dashed past me.

My p r e s e n t task was to guard Greekel and the little fellow to make sure they didn't get any obstreperous ideas. They weren't supposed to know they were Blyman's prisoners. They were supposed to march calmly into the lifeboat and take off with the rest of the party. The quicker the better.

But this oncoming wave of blue death was a monkey wrench in the machinery. It had knocked the props out from under us, so to speak.

Of course nobody expected the captain to rally us to the job of fighting. That was left to Hi Turner. But it was a bad time for Hi to have to march out with his bayonet, for Hi, too, had begun to swell up with the Brain Hop.

When the Brain Hop is on you, you don't feel fighting fit, I can tell you that. But Hi never hesitated.

He was all of nine feet tall when he and a handful of faithful marched out to try their strategy. From then on you could almost see him grow.

BEFORE he got a half mile away he was breaking out of his clothes. Later I heard the gunners remark that he'd cast off everything but the breech cloth he'd made out of his shirt. They guessed him to be sixteen feet tall.

But he lifted to more than twenty feet before he got within action range of the swamp beasts, and was still growing.

He and his men were outnumbered

more than a hundred to one. True, they were armed. If they could keep from getting mobbed they had a chance. But the treacherous danger lay in the sudden up-cropping of a whole cluster of blue devils, pouncing with their metal clubs from ten or fifteen directions at once. The first two times that happened it looked bad for us. Three of our men fell under a rain of clubs.

But soon from the gun turret we saw the planned strategy go into action. Hi and his men picked up wooden clubs of their own. At a given signal they struck the mud with a volley of blows.

We couldn't h e a r the smacking sound, but we could imagine it. To the blue swampers it must have sounded like some of our men were being beaten to pulp. The blue heads bobbed up all around to see. That's when Hi would jab out with his bayonet and his boys opened up with their pistols.

It was also the cue for our gunners in the turret. They spotted the big boys who bobbed up out at a safe distance. Then crack! Swoooosssh-*blammmm!* Big boys and patches of swamp blew up together, and what came down could have passed through a sieve.

That was good for the next two hours. Whenever a big twenty-foot leader was lost, a handful of smaller fry got the same medicine.

Hi was shrewd enough to work back and forth from one end of the line to the other, and to vary his technique often enough to keep a jump ahead.

As the big ones were blown to smithereens, the scared midgets went high-tailing it off for deeper water or blacker mud.

It was one of those rare military shows that you'd never forget as long as you live, and Hi was running it all the time. He was so big, now, that he was down on his chest most all the time; for if he exposed himself they would know his men were there too. So far he had lost only the three.

Meanwhile in the ship Greekel and the little two-footer were jumping around like wild men, they were so excited. They wanted to run back home and tell everybody, and I was in such a jubilant frenzy I could easily have consented.

But Doc Blyman was seeing to it that there were no such slips.

What interest was the doctor taking in this perilous job that Hi Turner and the boys were putting over for us?

None whatsoever.

CHAPTER XXII

Orange Juice and Pigment

AND what about Captain Redfife? Did he exhibit any concern over this bold smash at the creatures who would have gladly dispatched him in their stride?

He did not.

The fact is that Redfife was in no condition to be interested in anything pertaining to the destiny of our ship. If ever I've seen a man in a state of jealous insanity, it was Redfife during those crucial two hours. He saw only one thing: Hi Turner's increasing stature.

Of course everyone knew that Hi had a headful of brains, though we hadn't exactly stopped to realize he would rise right up into a seventy-five footer.

Captain Redfife couldn't take it.

"What makes him keep growing?" the captain bellowed. "How tall is he now? . . . Thirty-five? . . . *I'll* be forty. I know I will. You just wait. He'll never make forty . . . if he does I'll be forty-five. He can't outdistance me . . . Listen, Doc, I've got to talk with you . . . Wait, Doc. I want to talk in private . . . You've got to tell

me, *did you get those powders made up?* . . . Where are they? Well, why the hell haven't you tried them out? I told you—Listen, Doc, I'll outsize him, or I'll blow your damned brains out. *I'm* the captain! *He's got no right to be so big.* Look at him, he's *all of forty already and still going! . . . Doc!"*

But the doctor wasn't listening. He was in a strange madness all his own. I insist a man would have to be mad to ignore what Hi and those boys were doing, risking their life blood for the expedition.

Obviously Blyman meant to take himself and his two living proofs—the top and bottom Stair-steps—off into space within the next few minutes. And I'm certain he didn't give a damn whether the captain or anyone else came with him. I'd take an oath on that. All the science was in his hands. The prize and the glory were his, almost. He was in a panic to cash in *by himself.*

That was what Skinny and I knew after our clandestine visit to his blood-stained, powder-smeared laboratory.

Now the doctor was forcing a spoon between the lips of the little two-footer, saying, "Tell me how this tastes to you. Sweet?"

The spoon had contained a few grains of the cream-colored powder mixed with water. It was a stingy dose, considering that there was a whole red shoe-box of the stuff.

"It's sweet," said the little fellow skeptically. "What is it?"

"Just a test. No—no more. This stuff is potent. Tell me if anything happens."

Five minutes later the little chap was loosening the bands on his luminous garment and pacing around to make his doughy-white shoes more comfortable. To me it was one more proof of the protoplasmic flexibility that human beings had attained under Swampy Satellite conditions. The little fellow grew at least six inches. The doctor noticed in passing but made no comment.

The little fellow was sore about growing. As low man of the well disciplined eleven Stair-steps he had been proud. Proud to keep his place. He had taken pains to learn nothing, thereby remaining exactly two feet tall.

Now he was as mad as hops. He started to think over some methods of revenge, but Greekel warned him not to think or he might do more growing.

Greekel was a decent chap and I hate to tell you what he and the little fellow went through soon after that. I was sure when the Doc gave them each a drink of orange juice that he was pulling something over on them.

"This'll rest your nerves for the take-off," he said sharply, and they downed it.

IT MIGHT not have happened if the battle outside the ship hadn't taken a turn for the worse. From the looks of things, the east end of the line of blue swampers might gather in close enough to make a rush on the ship. Our ship's gunners were pot-shotting at them hot and heavy. But every third or fourth shot was needed on the west end to protect Hi and his fighters. So the east end gained ground.

On the previous evening the space lifeboat had been removed from the ship to relieve it of weight during our attempted excavations. Consequently the Doc had had the steaming hot task of carting all his luggage a distance of a hundred yards, where the lifeboat was parked on solid ground ready for a take-off.

Now the doctor stopped to tear off part of his tight clothing. He had been laboring under his own violent period of

Brain Hop, now about over.

He had no time to be proud of his new ten foot height, and scarcely time to be annoyed at his strangely darkening complexion.

At last almost all his goods were ready to go.

As for his passengers, only the captain was aboard. It was time for Greekel and the two-footer to follow suit, and the doctor cursed me because I hadn't already seen to it.

"Step along, you goddam exhibits," he yelped. "You might just as well start marching to my music—"

Greekel slugged out with a fist, and the doctor found himself against a wall with his hands rubbing his jaw.

"We think we won't go," Greekel said.

"What kind of talk is that? Of course you're going! Has this damned Blonder been putting ideas in your head?"

"We don't like you," the twelve-footer said quietly. "We'll just stay home."

Dr. Blyman's ten-foot b r a i n had thought of several things, and among them was orange juice. Whatever he had put in it was at last beginning to take effect. Greekel came at him again, but the attack was only a staggering gesture, and Greekel's eyes rolled dizzily.

"Get moving." Dr. Blyman grabbed a metal club from off a shelf. It was the four foot handle we had once cut from a green swamper's club.

I tore into the doctor, then. The best I can say for my next few minutes is that I fought in a blind fury, the same as anyone would have done under the circumstances.

I'm glad there were no cleats on the handle end of that club. It sliced against my head twice, starting a stream of blood. I knew then that Blyman meant to kill me. He would do as much for anyone who stood in his way. I fought accordingly.

I lacked the reach and the strength to make my fists count. After I threw three or four solid punches at his mid-section, the club smashed down on my arm, which dropped like a limber rope and hung helpless from my shoulder socket.

I hurled myself with every ounce I could muster. I struck him at the knees, but failed to knock him off his feet. That's when the club cut down across my ankles and threw me into a heap on the floor.

"You blue devil!" I yelled as he went out. It's a wonder he didn't come back and brain me. I couldn't have stopped him. I was off my feet, completely helpless.

But the doctor had his big hands full of Greekel and the little fellow, driving them to the space boat, clubbing them all the way. I thought he would surely kill them. They were groggy from their drugged drinks, in no state to offer resistance. But their stupor hadn't made them insensitive to the pain, anyone could see that.

After he'd herded them in and locked the door on them, he started back across the sandy clearing.

"This time he'll finish me!" I thought as I lay there, a mass of blood and pain and hatred. "But he *is* a blue devil. And I mean blue. Along with his Brain Hop something drastic has sure as hell happened to his pigment. In that makeshift costume he looks just like one of those swampy human bea—"

Wham!

One of the ship's guns barked, and a ton of stuff jumped into the air, said stuff consisting of sand and gravel and the blue Dr. Blyman. What came down could very easily have passed through a sieve.

CHAPTER XXIII

Wind-Up

I COULDN'T see what the gunfire was doing, or how Hi and his bayonet and his faithful fighters were progressing. I was busy fighting the pains, trying to hold onto consciousness.

Finally I succeeded in applying a crude first aid bandage to my bleeding head and dragged myself up onto a table where I could again see the action on all sides.

Hi Turner had turned into a handsome giant of a figure, in spite of slime and mud. He was more than a mile away, still working like a demon, mowing the brush piles with his bayonet. His band of helpers were dwarfed in comparison, for by this time he had reached his full height of seventy-five feet.

From the ship's gun turret came echoes of high praise for our swamp veterans. The gunfire began to tame down. The blue swamp devils must have been pretty badly demoralized.

Once I heard some low surprised gasping from the turret, and mumbled remarks about Captain Redfife.

"He looks small," someone said.

"That's 'cause you've been looking at Hi," someone else answered.

I turned to view the space lifeboat. At eighty or a hundred yards it was difficult to tell whether the captain had actually shrunk, especially after gazing at the gigantic figure of Hi. I'll admit I had a wishful guess that the captain would shrink. That was the way I had sized up his brain power.

He was a pitiful sight, though, all apart from his size. You could tell by his tense attitude, as he looked out through the lifeboat window, that he was watching Hi Turner. He was watching and burning up with jealousy. His words of insane envy roared in my ears. Hi Turner didn't dare outgrow *him*. For *he* was the captain.

The door of the lifeboat opened and he appeared in it, still watching far across the swamp. The pitiful fellow was figuratively burning to a cinder. He couldn't take it.

Now he came out of the lifeboat. He slipped across the clearing with the quick, agitated motions of a nervous little man.

As he came closer I knew that he was still shrinking.

He was waddling like a fierce little bald beetle-browed clown. Again, he reminded me of a stunted fire-plug.

He must have seen me lying almost helpless on the dining room table when he came in, but he may have taken me to be unconscious or even dead. My broken ankles and arm, and my torn skull had temporarily knocked all the life out of me. He waddled in and slipped past me. His silent shudder was probably a fear of being seen.

Like a mouse on an errand of thievery he moved into the laboratory, pulled a chair up to the bench, climbed on it.

He could barely reach the red shoebox that contained the cream-colored powders.

I think he was not very much more than a foot tall—a sort of human nail keg.

He dipped his fingers in the powders and licked them. This was the treat that the doctor had promised him in case of an unfortunate turn of events. The confidence had passed between the two of them, and Skinny and I had overheard it.

What the powders consisted of, I do not know. Not in terms of chemical formulas. But I had seen a few grains of that powder act upon the little Stairstep and I knew it was potent.

IN a general way, too, I knew the principle upon which it worked; for we had heard the doctor talk of drug stimulants which would act directly upon the pituitary, without the intervention of a governing effect from the brain—a drug which would release the terrific potentialities for flexible growth provided by the dust radiations with which any human body on this satellite became saturated.

The little keg of a captain took the box with his back to the lifeboat. He entered, leaving the door open. Soon his envious countenance was again watching at the open window.

It occurred to me that this was his chance to take off. The doctor's equipment and the two living exhibits were aboard.

But of course the captain was determined to wait for Dorothy, who had promised she would come back from the chasms before the hour of the take-off.

Taking his Martian brunette with him was so firmly fixed in the captain's one and a half foot brain, I thought to myself, that here he was passing up his opportunity to be climbing through space.

Or was he determined to stay until he could somehow prove himself master over Hi Turner?

What could he do about Hi? Was it an invariable rule that a man in power must take a sadistic slap at an underling who has outdistanced him? There was a treacherous danger. I tried to think how I might warn Hi—and as I thought, I seemed to be growing again.

With even such slight feelings of growth there came an easing of my pains. Perhaps my crumpled bones were straightening a little.

I wondered what effect I might enjoy from those cream-colored drugs, which the captain was still sampling with such gusto.

The big seventy-five footer from the sub-swamp region came across the wasteland. His costume was a brilliant luminous red in the midday light. With handsome strides he wended his way toward our own seventy-five footer.

About two miles away from the boat he and Hi Turner met and joined their forces against the little blue and green pests that remained of the swamp army.

Soon some of our fighters came dribbling back home. The big man from the chasms, they said, had been fascinated by Hi's strategy for routing the swamp pests. And though the sub-swamp world was never bothered by them, he was well aware that they were human rattlesnakes and must eventually be exterminated.

Above all, Seventy-five was grieved to know that three of our fighting party had been lost.

Now that our guns had fallen silent, Dorothy and her father appeared at the edge of the clearing. Our gunners and returned fighters went out to greet them, and they all trekked across the battlefield toward the spot where our three lads had fallen.

Some of the larger men carried me. Skinny, too, appeared to join these moments of memorial service above the blood-stained swamp waters.

WE TRUDGED back slowly, talking of many things. Nobody talked in bitter tones about our ship, two-thirds sunk; or the lifeboat, poised for a breakneck voyage through the void; or even the stupid, boastful captain that had cost us so much trouble.

My carriers and I lagged along behind the others to talk with Skinny. His short legs were almost worn out, for he had been following Dorothy and her father like a watchdog.

"They had a long talk with the sage," said Skinny. "Dorothy won her point.

Blackwell was reasonable. He was in a good mood, because the Brain Hop had just turned him into a six-footer. Seems he'd always had an inferiority over being short. Anyhow he gave his permission for her to choose her own planet and her own society."

"Then there'll still be at least nine stair-steps," I said. "Unless she changes her decision when she sees the captain."

Skinny was shocked at such a suggestion.

"Redfife could never change her mind—*could he?*"

The thought struck Skinny with terror, the more so because Blackwell and Dorothy had hurried back to the clearing ahead of the rest of us.

We were still a half mile away when all at once we heard the *swoo-oo-oommm* of the lifeboat taking off.

Skinny was out ahead of us, racing over the swamp like a jackrabbit.

I told the two men who were carrying me to put me down and follow him. But they clung to me and we covered the distance at a good clip.

"She must have gone, after all," one of them kept saying. "Redfife generally gets what he wants."

But as we came up to the ship we learned that Redfife had received such an unqualified, "No!" from his Martian brunette that he'd barged off in a rage.

Now Skinny was talking with her, and they were laughing as if nothing in the world mattered except themselves. It was the first time Skinny had dared to face her since his loss of size, and I was curious to know whether she would still be interested in him.

But as we passed, I heard Skinny say stoutly, "Whatever happens to the ship and the rest of the party, I'm staying here. I've already gained back half a foot. I'll soon be tall enough to marry in the five-foot class."

"I can get you a job helping the sage," she said, and it was plain that her smiling eyes were only for him.

A little later I observed Dwight Blackwell more closely. His clothes, for once, were not neat, being too skimpy ever to fit him again. However, the rise of this dapper little man of wealth into the six-foot class had given him a fresh pride that made his poise and dignity more genuine than ever.

Two immense shadows came across the beach.

We looked up to see Hi Turner and the other seventy-five footer approaching, looking like a couple of giant mud packs. They were talking in their tones of soft thunder and you could tell they were like brothers.

Hi looked down at us with a strange glint in his big eyes. He had an idea. And maybe, too, he was seeing us for the first time in a new perspective.

He gave a nod to the red-shirted Seventy-five, and the two of them got busy.

With their big hands they scooped tons of wet sand away from the sides of the *Sky Cat*. For many hours it had been at least two-thirds buried in the quicksand.

Slowly and carefully they lifted it out.

They carried it into the lake, washed the dirt off, and brought it back clean, placing it on the edge of the clearing.

AN HOUR later we were ready to take off.

We realized we still had time to catch up with the captain's lifeboat. Hi advised that we should follow through, right on the captain's tail, and ride into port with him. All of us, Hi said, would be needed at the judge's stand, now that we had lost our doctor. We must be ready to pool our testimony.

"If you need more evidence, we may come later, in a larger ship," said Hi, speaking for his sub-swamp twin and himself. "But the *Sky Cat* wasn't built for us. Good luck, Blackwell—Blonder -all of you."

But there was another moment's delay just before we got into motion.

Two figures came running toward us from a thicket, waving us to wait. They were Greekel and the little one-foot Stair-step.

"We'll go too," Greekel yelled. "But not with your captain. We didn't like him."

"Besides," the little fellow added, "he crowded us out."

After many hours in space we gained a fuller appreciation of the little fellow's comment. We came upon the lifeboat. It was speeding along at almost full blast. But its only passenger, Captain Redfife, was no longer tending the controls.

He was dying.

He was large—but not from brains.

He had grown too big for the lifeboat. His mountainous, formless body had become choked within the metal prison, and his swollen, bulging head, which pressed against the thick glass of a window, showed that he was slowly strangling.

The pressure of his growing size must have been tremendous.

Even as we watched, the lifeboat burst . . .

Our journey is done.

At this moment, we are riding safely into port. I am at the typewriter bringing my story up to date, batting the keys with my one good hand.

Although Hi Turner is not with us, the influence of his leadership is very much upon us. And Dwight Blackwell, to whom Hi gave official command, has had good cooperation from all.

The prize? We're holding our breath. Maybe so—maybe not. It depends upon what the other expeditions have dug up.

But at least there'll be an individual prize for our most valuable man, which we've already voted to Hi; though he doesn't know it.

And Hi has another surprise in store, but not a pleasant one. I suppose it will fall to me to tell him the lifeboat was lost in a weird explosion caused by envious combustion.

★ SUPER DEODORANT ★

PEOPLE may argue as to what they consider the most offensive odor to be but they all agree that life would be more pleasant if all these odors could be destroyed. And that is exactly what OD 30, a new and powerful deodorant soon to be put on the market, will do according to the three men who developed it after three years of research. The idea was conceived by Dr. James G. Dalbey, a former chemist at du Pont, and was developed with the aid of Dr Lloyd Arnold, University of Illinois bacteriologist, and Dr. Walter H. Eddy, professor emeritus of physiological chemistry at Columbia University.

The inventors decided to call their product OD 30 because it is odorless itself and performs its job in about 30 seconds. It is made from potassium permanganate, borax powder, carbonate of soda, several other compounds, plus a secret catalyst developed by Dr. Dalbey which really puts the effectiveness into the deodorant. OD-30 literally burns the odors up by oxidizing the minute particles before they can carry the odors to our nose. By mixing OD 30 with water, a solution is formed that will work in a spray gun that will rid a fish market, public rest rooms, slaughterhouses, and the like of their unpleasant odors just as Flit rids them of flies. It is so powerful that it will even get rid of skunk and stench-bomb odors.

Dr. Eddy claims the product is entirely safe even if used as a mouth wash to erase onion-breath, but it cannot be used as a body deodorant since the OD-30 only works on the odor and not the source of the odor. A word of warning must be given and that is to keep the OD-30 away from perfumes, flowers, and luscious dinners, for it will destroy pleasant odors just as readily as it does the unpleasant ones.

THE MAN WHO

A terrified scream rang through the studio —and no wonder!

LOST HIS FACE

By HELMAR LEWIS

The secret of Vane's ability as a radio actor lay in the fact that he studied the part until he was living it

VICTOR VANE was a radio actor. He was a good radio actor, one of the best in the business. When he was assigned a part in a radio drama, he didn't merely read his lines, as most actors do, as though they were printed words on a page. He lived the part. He studied it, struggled with all its character ramifications, read up about the type of person he was portraying until he knew everything about the character there was to know.

That was why Les Morris, producer of the new soap-opera, "Life and Love," chose Vane for the part of Kayamuto, the Japanese heavy, when he held his auditions.

"Can you do a Jap dialect?" Les had asked.

"I think so," Vane replied.

That was what most directors liked about Vane. Unlike most actors, if he thought he couldn't do a part, he'd say so right off and avoid difficulties in the future.

Before the serial went on the air, Vane went about his customary thoroughness in preparing himself for the

part. He read every book he could find on Japanese character. He interviewed dozens of Japanese people, made notes of their dialect, observed the manner in which they jutted their upper teeth over their lower lips—studied every facet of the role until he was letter-perfect.

As a result, when the show went on the air, every radio-columnist in the country lauded his interpretation. And the daily mail, in addition to containing requests for whatever premium the sponsor was giving away at the time, usually had a good word to say about the actor who played Kayamuto.

That had been five years ago. And for five years, fifty-two weeks a year, five days a week, Vane played the part of Kayamuto. Every morning, an hour before the serial went on the air, he would appear at the studio and get a copy of the day's script. Then he would go into a corner and work over his lines. Every word received his attention. He would screw up his eyes into Japanese slits, jut his upper teeth over his lower lips and, with a wide grin, mouth each word, in the clipped Japanese staccato quality, until he was satisfied that his interpretation was perfect.

In all that time, he had created the character of Kayamuto until it had become a living thing. Revealing idiosyncracies of speech, the characteristic Japanese hiss, the in-taking of a breath of air before the opening words of his speeches—all these and dozens of other devices Vane put into his character.

Even when he was not on the air, Vane played the part of Kayamuto, so ingrained had the character become with him. In the studio waiting-rooms, where the actors congregated to talk and to button-hole producers for work, he would gag around using his Japanese character as a foil for the dialects and characters affected by the other actors.

"How're things going, Vane?" someone would ask.

"Oh!" Vane would reply with an intake hiss of breath, "Honoraboo' Kayamuto earn nicery money."

And then the actors grouped around them would grin or laugh as they watched Vane screw up his features and heard the high-pitched voice clip the syllables and changed the "l's" to "r's", as most Japanese do.

Even Jane Hardy laughed when she first heard Vane.

JANE was a new member of the cast. She had been in radio for some time, getting her start in Hollywood where she had played bit parts in the movies and in radio shows. She was a pert little girl who, like Vane, was quite conscientious about her work. She attended no cocktail parties. And whenever an agency approached her to join a binge being given for a prospective sponsor—the pretty girls were used as bait—she would turn down the offer with a gag. She lived with her mother in a hotel close to Radio Row and earned enough to take care of them both.

Jane laughed when she first heard Vane go into his Kayamuto part. Ordinarily, she would have shuddered. For she was deathly afraid of all Japanese. When the Japanese invaded China, Jane's mother and father had been in Fungchow as medical missionaries. An urgent cable from them brought her flying to China, from Hollywood, to get them out of the country before the Japanese really took over. She arrived in Fungchow a day before they stormed the gates of the city. She saw all the pillage, all the rapine, all the hideous brutality that the Japanese soldiers inflicted on the helpless Chinese. She saw her own father murdered in the missionary compound because he refused to divulge the hiding place of a number of Chinese girls he had secreted.

Through the aid of the American consulate in China, she had finally managed to get her mother and herself out of the country. But she was never able to forget the sneering, yellow, wire-bearded faces of the brutal Japanese soldiers. And when the Japs finally attacked us at Pearl Harbor, she experienced a strange feeling of pleasure. Now, she thought, she would even up things with the little, yellow, monkey-men of the Rising Sun.

But, although she hated and despised the Japanese, she enjoyed the work she did with Vane when he played Kayamuto. There were times when the realism of his role made her shudder as she stood across the microphone from him. The script in her hand would shake like a leaf in the wind. But she held on to her emotions and sailed through the dialogue because, like Vane, she was a good actor—a real trouper.

She was flattered one night when Vane asked her if she'd accompany him to the AFRA masqued ball.

"I'm going as a Japanese, of course," he said.

WHEN Vane appeared at her hotel to pick her up the evening of the ball, she could not help feeling revolted at his appearance. He had rented a Samurai outfit—sword and all—and she could have sworn that the man, grinning at her doorway, was actually a member of the ancient Japanese nobility. He had laid on a thin patina of yellow face-powder and had tweezed his eyebrows so that they gave an unnatural slant to his slotted eyes.

"Honoraboo' rady ready fo' bawoo'?" he asked.

She caught an imperceptible shudder in his face when she saw his eyes light on her costume. It was that of a Chinese coolie-woman's that she had brought back from China. What had been a grin on his face changed to an angry leer.

"Whyfo' you wear Chinese dress?" he demanded.

Jane grew frightened. "Please, Vic!" she said, "I'd rather you dropped Kayamuto. I don't like it. It brings back to me some very horrid memories!"

They went to the ball and enjoyed themselves. But, beneath the gayety, Jane found herself suppressing a rising feeling of revulsion. Not only that. She sensed, in Vane, a distinct objection to her. So upset did she become by these conflicting emotions that, after a few hours, she told Vane that she was suffering from a sick headache.

"You stay here and enjoy yourself!" she insisted when he prepared to take her home. "I'll get home myself!"

The next day, on the program, she experienced the same feeling of revulsion. Vane stood across the mike from her, script in hand, reading some of Kayamuto's lines. This time, she noticed something strange about him. Before that, when he was in character reading his lines, he would assume the facial delineaments of a Japanese but, the minute his lines ran out, he would relax and the lines in his face would become Occidental again. This time, though, she observed that, instead of straightening out, his eyes retained much of their Oriental slant. And his upper teeth, somehow or other, remained projected slightly over his lower lip. The effect was so startling to her that she lost her place in the script and fluffed a whole line.

Although she had been seeing Vane quite often before that, she decided to break off with him entirely.

"It's all for the best," she told him.

He shrugged his shoulders. "Oh!" he said, with the polite intake hiss of breath, "Honoraboo' rady know her mind mo' as lowry Kayamuto."

She saw very little of him after that. Only when they were together on the same episode of the serial did she have any contact with him. Occasionally, though, some actor would say to her,

"What's wrong with Vic Vane?"

"Why? What's the matter?" she would ask.

"He's not the same guy I used to know," would be the reply. "He's been acting kind of nutty, if you ask me. Always uses that Japanese dialect he's fallen into. Never talks straight English. And, I'm a monkey's uncle, if he isn't even beginning to look like a Jap!"

OTHERS in the studios were saying the same thing. They would see him walking down the hallway to the studios, or in the elevator, take a casual look at him and then, in a double-take, look again to make certain of what they were seeing. Invariably, they would blink. For they were sure that the man they had seen was not Vic Vane but a Japanese who looked like him.

"What's this I've been hearing?" Les Morris asked Vane one day after a broadcast. "The grape-vine's been spouting some awfully funny stuff about you?"

Vane shrugged. "You know the radio grape-vine."

"But you don't look well!" Les insisted, "your skin is yellow. And there's something screwy about your eyes. And your mouth. I'll be damned," he added, "if you don't look like a lousy Jap!"

Vane hit him in the jaw.

"Prease not to speak of my peopoo' wiss insu'oot!" he hissed. There was a venomous cast to his face that forced Les to shrink back rubbing his aching jaw.

The same thing happened a few weeks later. The waiting-room in the N.B.C. studios was jammed full of actors waiting for shows to go on or producers to appear so that they could be button-holed for jobs. Vane was standing off to one side chewing the fat with a group of actors and smocked musicians. Naturally, the talk had turned to the war.

"Wait until we get the planes over to Chiang Kai-shek's men," one of them was saying. "We'll bomb the hell out of Tokio and every goddamned little yellow monkey on the island!"

"Is so?" Vane demanded balefully.

"Why not?" the man countered. "Don't tell me you're pulling for Tojo's monkey men?"

Vane knocked him down with a right to the jaw.

"White barbarian talk soft now about Honoraboo' Nipponese!" he hissed.

He looked around at the others as though to challenge them. They could do nothing but stare at him with open-mouthed wonder and amazement.

"What the hell's come over the guy?" one of them asked when Vane had turned on his heel and stalked away.

"Search me!" the one who Vane had hit said. "The guy's turning into a Jap lover!"

"Someone should report him to the F.B.I.!"

"Why, he even looks like one!"

EVENTUALLY, one of them did telephone a tip into the F.B.I. headquarters. An investigator was sent out for a routine checkup. He returned scratching his head in puzzlement.

"What did you find out?" his chief asked.

"The guy's as white as I am," the F.B.I. man replied. "I checked into his background and found out his folks are descended from good old American stock, all of them."

"What's the gag, then?"

"He talks like a Jap, acts like one, thinks like one and I'll be goddamned

if he doesn't look like one!" was the reply.

"Are you sure there wasn't a switch made?"

"Positive! He's the same Victor Vane that's been a radio actor for ten years. I checked up with dozens of other actors—even a former girl-friend. They all said he's the same guy. But there's something about him that's different."

"Well," the chief replied, "keep him under observation. And if he blatts out any more about the Japs, we'll pull him in and give him the works!"

That sort of thing went on for some time. Vane's former friends and the fellow-members of the cast of the radio-show, which had weathered five years of broadcast, saw his face become more Oriental. Now, instead of forcing a Japanese set of features, he seemed to have one all the time. No one ever heard him talk in straight American English. He lived alone, in a hotel room near Radio Row, and fraternized with none of his former friends.

The payoff came one day when Jane Hardy came across someone who had heard of Vic's mother.

"She lives somewhere in southern Illinois," she had been told.

Jane investigated, discovered that Vic had a mother in Lyons, and wrote to her telling her of the change that had come over her son. Mrs. Vane wrote back that she was leaving for Chicago immediately. When she arrived, Jane met her at the station and told her, in more detail, of Vane's metamorphosis. They decided to go to the studios where Vane was scheduled to appear in the serial that morning.

SEATED in one of the benches that lined the studio waiting room at N.B.C., Jane and Mrs. Vane awaited the arrival of the actor. When Jane spied him getting out of the elevator, she leaped up from the bench.

"He's coming!" she whispered to Mrs. Vane.

"Hi Vic!" she called out to Vane when he passed them.

Vane turned to Jane. "Hello, Miss Jane!" he said.

He completely ignored his mother at Jane's side.

"Vic!" Mrs. Vane cried out to her son.

Vane looked down at the woman. "So sorry!" he hissed, "but we are not introduce."

Mrs. Vane threw her arms around her son's neck. "Vic! Vic!" she cried, "I'm your mother! Don't you remember me?"

Vane tried to shake the woman off. "Prease!" he insisted, "we are not yet introduce!"

Eventually, he succeeded in extricating himself from the woman's grasp and sauntered away to the studio where he was to rehearse. Mrs. Vane sank back to the bench in tears.

"He was your son, Mrs. Vane?" Jane asked, "wasn't he?"

"I'm sure it was Vic!" Mrs. Vane replied through her tears. "But something's happened to him. He's different. His eyes have changed, his mouth and his voice. Something terrible has happened to him!"

Jane took Mrs. Vane to her hotel and put her under the care of her mother. Then she went to the police and told them the whole story.

"What can we do?" the Captain asked her. "If he insists on not recognizing his own mother, that's his right."

"But she swears he's her son!" Jane insisted.

"He's old enough to vote and knows his own mind!" the Captain retorted. "I'm afraid there's nothing I can do about it."

"What can we do then?" Jane asked.

"You might have a state psychiatrist examine him," the Captain replied, "but I'm afraid this isn't a police case."

Eventually, things were arranged so that Vane was picked up and examined by the state psychiatric board. The hearing was held one Thursday afternoon in the regular trial room of the Mental Institution. Jane and Mrs. Vane sat in the audience together with a number of interns and nurses who were listening to the cases. Six of the state's outstanding psychiatrists and neurologists sat in judgment. Vane sat in a chair, surrounded by the six eminent men, twiddled his thumbs and leered at them and at the audience.

Throughout the examination, he insisted that he was not Victor Vane.

"I'm Sessue Kayamuto!" he pleaded.

WITH information supplied to them by Mrs. Vane, the doctors attempted to draw Vane out about his past. But he insisted he had been born in Tokio, Japan, of Samurai lineage. He amazed the doctors with the minuteness of his information. He even named the street he had been born on, gave the names of his father, mother and brothers and, to cap the sorry spectacle, began to converse with them in pure Japanese.

There was nothing to be done about it, the doctors decided. Although a physical examination proved that Vane was not a Japanese—the peculiar eye muscle that makes for the Japanese eye-slant together with the typical splayed big toe of the Japanese were not present on him—they decided that he was certainly not commitable.

"It's a curious case of amnesia," one of the doctors explained to Jane after the proceedings in which Vane was allowed to go free.

"But how about his eyes, his mouth and his color?" Jane asked, "how can you explain that?"

The doctor shrugged his shoulders. "We know of cases," he said, "in which, purely by mental suggestion alone, a woman is able to force herself to bleed from the eyes or from certain pores in her hand. The miracle of the stigmata, we call them. We know of them and similar cases," he continued, "but we know nothing of the how and the why of them."

"You mean he's forced himself, mentally, to become yellow-skinned?" Jane asked.

"Exactly," the doctor replied, nodding his head. "The muscles of his eyes have been forced into the squinting position of a Jap for five years, day in and day out. They've become atrophied in that condition which accounts for their peculiar Oriental slant now. The Japanese dialect, of course, was something he acquired, as were the smattering of Jap language and his information about Tokio and his family. I can explain the change of his skin only by referring you to what I have already said about the miracle of the stigmata."

"Is there anything that can be done about it?"

The doctor shook his head. "I'm afraid we're confronted with a classic example of amnesia. It was brought on by some traumatic shock, some incident that jarred the man loose from his mental bearings. The only thing that may jar him back again to his real self is another traumatic shock. That's about all I can say."

VANE returned to the cast of "Life And Love" and took up his duties as Kayamuto. Because of the war, he received a number of other calls to play a Jap on other radio shows. But, after a few weeks, the sponsors decided to take Kayamuto out of the serial entire-

ly. Complaints were already coming in from the listeners. They were against the continuation of a Japanese character who was treated sympathetically.

"We'll have to cut Kayamuto out of the show," the agency man explained to Vane.

Vane shrugged his shoulders. "There iss osser work!" he hissed.

"We'll do it with a big party, though," the agency man said. "The script-writer has written a humdinger of an episode in which you are put out of the picture. We're arranging it so that it falls on the fifth anniversary of the show and we're using a big audience studio for the celebration."

Vane said nothing to this. He turned and left the office.

The morning of the special broadcast from the audience studio found the auditorium filled with visitors. Heretofore, the serial had never performed for an audience. And there were thousands of listeners who wanted to see the cast in the flesh. Some of them even came from hundreds of miles to attend the performance.

There was an audible gasp from the audience when they saw Vane appear from the wings and walk over to his chair behind the microphone. Again, he had rented the Samurai costume he had worn at the AFRA ball. The long, curved Samurai sword dangled at his side. A few people from the audience hissed.

The show went on the air. The actors grouped themselves around the microphone and went through their paces. Jane was in the episode, too, and she shuddered when she looked across the mike at Vane.

The script-writer had solved the problem of getting rid of Kayamuto by having him discovered as being a Japanese spy. Through the investigation of the character that Jane was playing, his undercover activities had been exposed to the F.B.I. The script then called for Kayamuto, after having lost face in being discovered, to commit *hara-kiri*.

As Jane went through her lines of exposé, she glanced over to Vane. A strange thing was happening. She could see that he was actually suffering—that he was reacting to her words as though they were being spoken in real life. She finished the accusation and the actor taking the part of the F.B.I. man spoke to Vane across the mike.

"We've got you dead to rights!" he said.

Vane bent closer to the mike. "Yes!" he said in his high-pitched Japanese dialect, "I are Nipponese spy! I are Samurai, Honoraboo' ancestor make hara-kiri when lose face. Now Kayamuto lose face. Kayamuto are Samurai. Kayamuto make *Hara-kiri!*"

The script called for Kayamuto to groan and gurgle as though he had plunged a knife into his stomach. But, to the amazement and horror of the audience and of the actors grouped around him, Vane withdrew the Samurai sword from its scabbard, bent slightly forward and, with a ripping motion, allowed it to sink into his stomach as he plunged forward on its point.

He sank to the floor groaning.

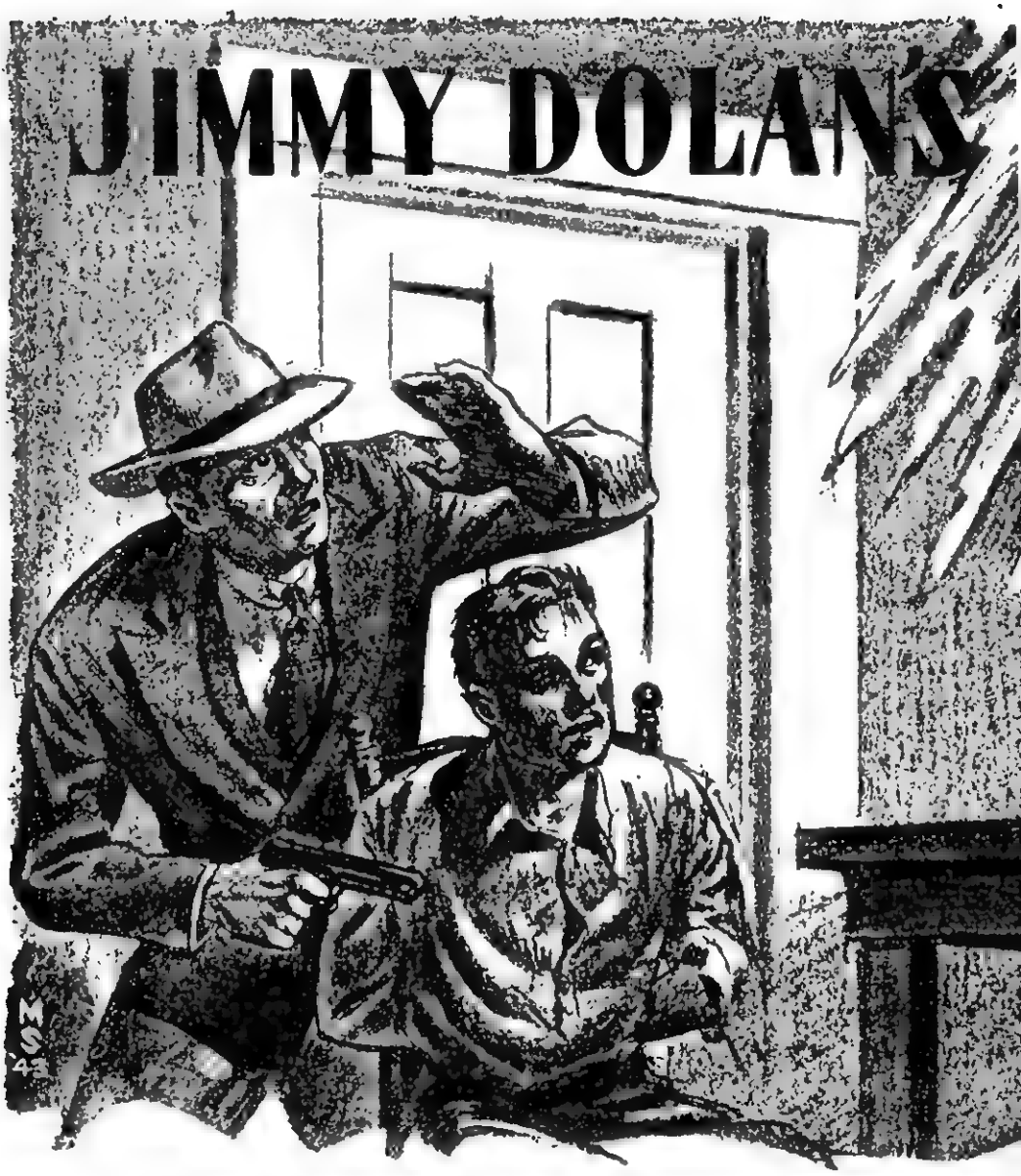
The audience screamed in terror.

Victor Vane, who had become Sessue Kayamuto, had lost face. He had gone to join his adopted Samurai ancestors. He was quite dead.

★ **BUY WAR BONDS** ★

Don't let the cost of this war pile up a huge mountain of debt that will rob your children of a chance to be happy and to live the life that is rightfully theirs!

PAY YOUR OWN WAY TO VICTORY AND PEACE!



By ROBERT MOORE WILLIAMS

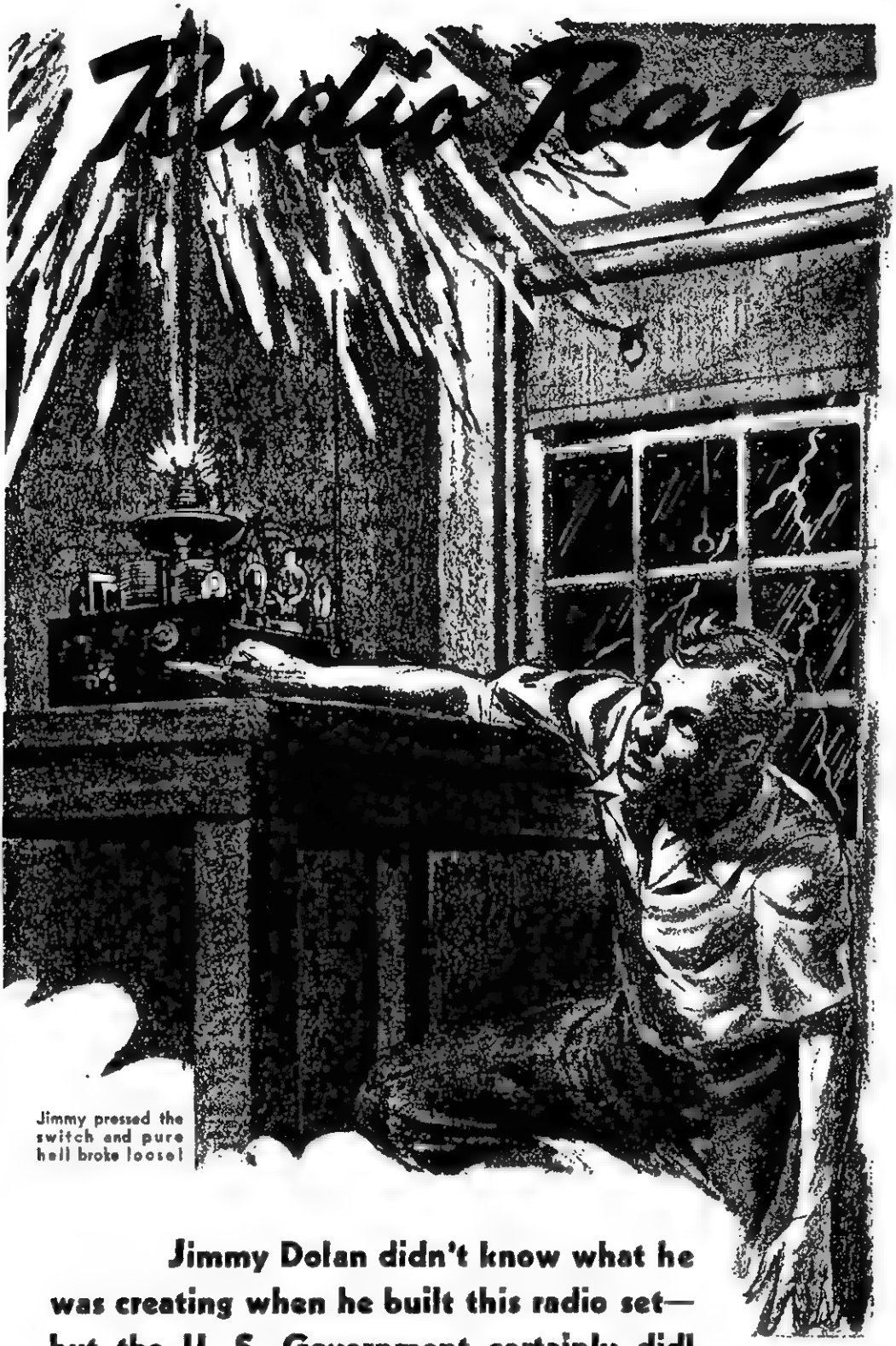
SOMEBODY stumbled on the back porch.

Jimmy Dolan didn't hear the sound. The stew, which he had been sternly ordered to watch, has just boiled over, sending up a cloud of steam from the surface of the hot kitchen stove. He had hastily shoved the kettle back, burning his fingers in he process. Worse than the burned fingers was the fact that the stew had seeped through the crack in the top of the coal stove and had almost succeeded in putting out the fire.

He was heating his soldering iron in the fire.

No mechanic would heat a soldering iron in a coal fire, if he could do better.

Radio Ray



Jimmy pressed the switch and pure hell broke loose!

Jimmy Dolan didn't know what he was creating when he built this radio set—but the U. S. Government certainly did!

Jimmy couldn't do any better. He had dreamed of the time when he would invent something and sell it for enough money to buy one of the electric soldering irons he had so often gazed at wistfully on the tool counter of the dime store. He hadn't yet made this invention and there were times when he despondently wondered if he would ever make it. Jimmy was fourteen. A soldering iron was important to him. The one he owned he had made himself, out of a bit of copper. He had to have such a tool.

Without it, he couldn't build the radio set he was working on.

It wasn't quite a radio he was building. Beginning with a galena crystal receiving set when he was eleven years old, he had made many radio sets. This was something like a radio set, except it was different. It was designed to do something that no radio had ever done.

Jimmy turned current into the set, began to check the connections. He didn't know whether or not it would work. He hadn't tried it yet.

A radio engineer, seeing the crude instrument assembled on the kitchen table—all the parts had been salvaged from junked sets — would have been contemptuous. The workmanship was crude. If it was a receiver, the design wasn't right. The design wasn't right for a transmitter either. It wasn't right for anything.

If the radio expert could have been forced to take a second look, he would have been puzzled. If he had begun to trace the soldered connections on the maze of apparatus, he would have been intrigued, and, depending on how good he was, maybe a little worried. This thing wasn't put together right at all. It was not put together in accordance with the specifications of radio engineering. He would have said it wasn't right.

Jimmy didn't know whether it was right or not. He had turned the current into it and was beginning, gingerly, to test it, when the back door was kicked open.

JIMMY jumped. His first thought was that it was his aunt, returning with the beer for supper, or his uncle, coming home from work. Either of them would be certain to yell at him to get that junk out of the kitchen and be fast about it.

It was neither. It was Bubber, his cousin. Bubber was sixteen, and big for his age. He saw the radio apparatus assembled on the kitchen table.

"Ain't you been told often enough to keep that junk out of here?" he said.

"I was just soldering it," Jimmy said defensively.

"You were just solderin' it!" Bubber aped. He was in a bad humor. His most recent effort to join Spinelli's gang had just been rebuffed. Consequently he was looking for a way to get even with somebody, anybody, Bubber didn't care who. Jimmy offered a likely target. For years, ever since the death of Jimmy's mother had forced him to live with his uncle and aunt. Cousin Bubber had been getting even with Jimmy for everything that happened. He advanced toward Jimmy.

"You stay away from me," Jimmy said.

"Telling me to stay away from you, are you?"

"I haven't done anything to you."

"Maybe you're too good to associate with me. Maybe that's why you're telling me to stay away from you."

Jimmy retreated to the far end of the kitchen table. He had long since learned the folly of trying to stand up against Bubber's hard fists.

Bubber stopped advancing. He stood at the other end of the table. He

knew that Jimmy would run if pressed too hard. He didn't want Jimmy to run. If the other ran, Bubber wouldn't get the pleasure of knocking hell out of him. Bubber resorted to strategy to get Jimmy within the range of his fists. He pretended to be interested in the radio set on the table.

Condensers out of old sets, coils, tubes, the loot of a dozen out-moded and junked radio sets was there. There was even a gadget that looked as if it had once been part of an electric heater. It had been a heater. The polished mirror designed to reflect heat had been cut down, the heating unit in the center had been removed, and five tiny coils of bare wire had been substituted. The heater was hinged so it could be swung in any direction. It was pointing up now, toward the side wall.

"What are you makin'?" Bubber asked.

"Nothing," Jimmy said. He did not move from his spot on the other end of the table.

"Aw, come on, I ain't gonna hurt you," Bubber promised. "Tell me about this thing. I'm kind of interested in radio myself. What is it?"

Jimmy could not resist a chance to talk about the subject that interested him most.

"It's a kind of a transmitter," he said.

"Will it get the police calls?" Bubber asked. The police calls always interested him. They afforded information and speculation on the whereabouts of his companions.

"Of course not," Jimmy said. "You would need a receiver for that. This is not a receiver."

"What good is it if nothing comes over it?" Bubber demanded.

"Nothing is supposed to come in over it," Jimmy answered. "It's not a receiver, it's a sender. You send things over it."

"Like this?" Bubber questioned. With a sweep of his hand, he started to shove the radio set off the table and on to the floor.

"Don't!" Jimmy screamed.

HE started toward Bubber, then hastily retreated as the other cocked his fist.

Bubber was having fun. An inch at a time, he shoved the radio toward the edge of the table. Jimmy, horror in his eyes, stared at what was happening. Bubber was going to shove his radio off on the floor and smash it. If he tried to stop it, Bubber would smack him.

"Is it s e n d i n g now?" Bubber chortled. At the age of four he had enjoyed himself catching flies and pulling their wings off. He shoved the radio ever nearer the edge of the table. The cone of the transformed electric heater was twisted around as he shoved the apparatus. It focused on the kettle of stew on the kitchen stove.

BOOM!

Jimmy's first dazed impression was that an earthquake had hit the place. The explosion rattled his teeth in his head. For a second, he did not realize what had happened. Then he saw stew dripping from the ceiling, stew running down the walls, stew all over the place. The kettle of stew had exploded. Then Jimmy knew what had happened. His heart jumped up into his mouth.

"It worked!" he shouted exultantly.

"Who threw that pineapple?" Bubber yelled. In his experience, explosions and pineapples went together. Bubber, startled almost out of his wits, was looking for a way to run.

"That wasn't any pineapple," Jimmy excitedly said. "That was my radio. It was turned on. When you shoved it toward the edge of the table, you accidentally focused the radiations on the stew kettle—"

It had worked! was all Jimmy was thinking. His invention had worked! He leaped forward and turned off the current. Until the explosion, he had not fully realized what *might* have happened if he or Bubber had walked into the focus of the radiations flowing from that heater cone.

"You mean that thing caused the explosion?" Bubber gasped.

Jimmy nodded.

"Holy cats!" Bubber whispered. "What is that thing— a death ray?"

There was awe in his voice. Through extensive reading of the more sensational Sunday supplements, Bubber had learned about death rays. In his mind he associated them with purple beams of light that caused tremendous explosions. Their inventors were always secretive men and their secretiveness had convinced Bubber that death rays were very valuable things. For a moment the idea that Jimmy, whom he cordially despised as a weakling, had invented a death ray almost un-nerved him. He did not remain un-nerved long.

"How does it work?" he demanded.

This was a question Jimmy could not answer. In the first place, he didn't know the words to describe what he had done in putting together parts from a dozen different radio sets. If he had known the words, Bubber wouldn't have understood. Like Bubber, Jimmy had also read the Sunday supplements, but in addition he had devoured every book and every magazine the library had on radio. Out of that welter of ideas had come something that could never have passed through the channeled mind of a radio expert, who would have rejected it as impossible. Jimmy didn't know that death rays were impossible. He thought they might work. There was something in his mind that enabled him to grasp electronics intuitively, with the result that even the first galena crystal receiver he had built had worked the first time he tried it. He knew electricity, but he didn't know words, with the result that when Bubber asked him how his death ray worked, he couldn't answer.

"I—I can't explain it," he said.

This sounded suspicious to Bubber. "So you won't talk," he said.

"I mean I can't," Jimmy answered. "I just can't. Heck, I would if I could."

EXCITEMENT gleamed in his eyes. He would have liked nothing better than a chance to talk about his death ray.

"What made the stew explode?" Bubber demanded.

"There was water in the kettle," Jimmy said. He could explain this much anyhow. "It was the water that exploded. When the beam struck it, it was turned instantly into high pressure steam. The steam caused the explosion."

"It blows up water then?" Bubber questioned.

"Yes," Jimmy answered.

"Why did it blow up just the stew kettle? Why didn't it blow up something else?"

"The beam was focused on the kettle," Jimmy said.

"Beam?" This was a little less intelligible to Bubber than Greek would have been. "What are you talkin' about?"

Jimmy pointed to the cone of the converted electric heater. "The beam comes out there," he said. "The heater is sort of like a mirror. It reflects the high-frequency radiations in a beam like—sort of like the beam from a flashlight," he ended triumphantly.

Bubber studied the device. His mind was hard at work. "What would

happen if you turned it on a man?" he asked.

"I—I don't know," Jimmy confessed. His plans had not included using the device on a human being. The thought had not even entered his mind.

Bubber looked out the back window. If a human being had been in sight, there is no knowing what would have happened. Fortunately, the back alley was at that moment deserted. The only living thing in sight was a fat tom-cat, the property of Mrs. Faber, their next door neighbor.

"Come kitty, come kitty, come kitty," Mrs. Faber was calling. She loved her cat. She was calling it to eat.

"Gimme that thing!" Bubber said. He reached for the projector. The instruments were mounted on a baseboard and the whole device could be lifted easily.

"No!" Jimmy yelled. He tried to jerk the radio away from Bubber.

Smack!

In the stress of the moment, he had made the mistake of venturing within range of Bubber's fists. Blood streaming from his nose, Jimmy reeled back across the kitchen. He saw Bubber lift the projector, focus the cone out the back window, and turn on the current.

BOOM!

The windows of the tenement rattled from the explosion. A hole two feet deep miraculously appeared in the back yard. Pieces of tom-cat went sky high.

Bubber's mouth fell open as he stared at the place where the cat had been. He had been throwing rocks at that cat for years and it pleased him to know that he had caused the unfortunate animal's sudden death.

There was something else that pleased him more. He knew the death ray would work. He knew how it worked. He also knew what he was going to do with it. Carefully detaching the input plug from the light socket, he put the projector under his arm and went out the back door.

Jimmy dived after him.

"You can't have that radio. It's mine."

"It's mine now," Bubber said. He cocked his left fist. Jimmy saw it coming and tried to dodge. It caught him on the side of the jaw. He rocked backward, stars exploding in front of his eyes.

Bubber hastily went out the back gate and down the alley. He took the projector with him.

WHEN Jimmy recovered consciousness, he found himself the center of a babble of voices.

"Oh, the poor lad!"

"Is he kilt?"

"Them damned Nazis will have to pay for this."

There was a fog in his mind. Vaguely he wondered how the Nazis got into the picture. Then he heard Mrs. Faber screaming.

"It was a bomb! I saw it hit. It fell right on top of my poor kitty."

The neighborhood had been aroused by the explosion. The spectators, hearing the noise, seeing the hole in the ground, had been misled by Mrs. Faber's explanation. Mrs. Faber didn't really know what had happened, except that something had blown her tom-cat sky high. It seemed logical to her to assume that the city was having an air raid.

Jimmy got to his feet. The sympathetic hands that tried to help him, he brushed aside. He had been knocked out by Bubber before and he knew he wasn't badly hurt. He looked around for Bubber. Bubber was not in sight.

"And pwhat," a heavy voice demanded, "is going on here, if I may be askin' it?"

Cassidy, the cop on the beat, had been attracted by the sound of the explosion and by the crowd that had gathered.

"It's an air raid," he was advised. "Them dirty Germans are bombing us."

Cassidy was a man who never believed anything anybody told him. He squinted up at the clear sky. "An air raid, is it?" he said. "And where are the planes that will be doing this raiding? And why haven't the air raid signals sounded?"

No planes were visible, no sirens had sounded. The air raid explanation began to sound doubtful, even to Mrs. Faber, who had offered it.

"I know what happened," Jimmy said. He turned eagerly to Cassidy. Cassidy was a cop and would help him. Cassidy would make Bubber return his death ray.

"And what did happen, my lad?" Cassidy demanded.

"Bubber blew up the cat with my death ray," Jimmy said.

Cassidy blinked. "Will you be sayin' that again?" he asked.

Jimmy quickly explained. "The body fluids of the cat were largely water which turned to steam when the radiations struck it. The cat exploded. Bubber took my death ray and ran off with it. I want you to make him give it back to me. He stole it. It's mine and I want it back."

His words created quite a stir among the spectators. Those who were farther away crowded closer in order to hear better. Jimmy found himself the center of attraction.

"A death ray, was it?" Cassidy said.

Jimmy nodded. "Bubber took it away from me," he said.

"And ye made it yourself?" the cop continued.

"Yes. Out of old radios."

"And it blew up the cat?"

"Yes."

Cassidy patted Jimmy on the head. "Ye poor lad," he said. "Just ye take it easy now. Go inside and lie yourself down. It will be all right in the morning."

Cassidy didn't believe him!

"But I'm telling the truth!" Jimmy protested. "It was my death ray —"

"Sure, I know how it is, lad," Cassidy said soothingly. "No doubt the explosion stunned ye a bit. 'Twill be all right tomorrow. Just go inside and lie yourself down."

HE TURNED to the spectators. "Get yourselves moving along!" he bellowed. "Standin' here gawkin' like ye know no better. Or maybe it is a few licks on the head from my nightstick that ye will be wanting now?" He swung the stick aggressively.

The spectators hastily moved back. They knew Cassidy. He would use that stick. Jimmy was left alone with the cop.

"Now what really did happen, lad?" Cassidy questioned. "Ye must have seen it. Ye live right here, don't ye?"

"I've already told you," Jimmy protested. "It was my death ray—"

"Shut up wid yez!" Cassidy bellowed. "I will hear no more of that nonsense. Get yourself into the house, and if ye belonged to me, it is a good smackin' I would give yez, for tellin' such falsehoods. Go along, now, before I lose me temper."

To escape the smacking, Jimmy went inside. When his aunt returned and discovered the stew-spattered kitchen, he got the smacking. He also got to go to bed without any supper.

BUBBER did not return home that night. Jimmy, determined to find out what had happened to his death

ray and to get it back, waited up for him. Bubber stayed away.

He returned late the next afternoon, driving a second-hand, maroon-colored coupe. He was wearing a new suit of clothes. Stuck in the corner of his mouth was a cigar.

Bubber ostentatiously parked his flashy car in front of the tenement, to the admiration of a swiftly-collected group of small fry, who could scarcely believe that this was the Bubber they had so often seen hunting snipes in the gutter.

"You keep your dirty hands off this machine," he ordered the small fry, and swelled inside. Jimmy saw him coming. He also saw the car at the curb, the new suit of clothes, and the cigar. He met Bubber at the door.

"Where's my radio ray?" he demanded.

"Wouldn't you like to know?" Bubber answered.

"What did you do with it?"

"None of your business." Bubber was conscious of his power.

"I'll fix you," Jimmy muttered.

"Yeah?" he said sarcastically. "Go on

The catch was, Jimmy couldn't do anything to the bigger boy. Bubber was the stronger of the two.

"I'll tell the cops," Jimmy threatened. Bubber was scared of the police.

He wasn't scared of them any more. "Yeah?" he said sarcastically. "Go on and tell 'em. Tell 'em all you want."

"They'll put you in jail, for stealing."

"They'll put who in jail?" Bubber snorted, shifting his cigar from one corner of his mouth to the other. "I'm workin' for Spinelli now and anybody who is in right with Spinelli don't go to jail," he boasted. "Spinelli can tell cops where to get off."

"You—you're working for Spinelli?" Jimmy faltered. Spinelli was the neighborhood hot-shot. Bubber had been trying to join Spinelli's gang, without any success. A sudden flash of intuition gave Jimmy the reason why Bubber had succeeded in joining the gang at this particular time.

"You—" he gasped. "You gave my radio ray to Spinelli! That's why he let you into his gang!"

"That's some more of your business, maybe?" Bubber answered. Cigar sticking aggressively out of the corner of his mouth, he turned to the door. "I got some important things to attend to. So long, chump." The door banged behind him.

A few seconds later, Jimmy heard him shouting at the kids to get the hell out of his machine, and stay out of it, if they knew what was good for them.

That was that. In the world of Jimmy Dolan, might frequently made right. Bubber was bigger than he was, stronger. In any contest between the two, he would be the winner. But when Bubber drove away, Jimmy was following him.

BUBBER, in his car, was soon lost to sight. Jimmy went to Spinelli's saloon. Bubber's car was parked in front. The important business he had to attend to was with Spinelli.

Jimmy knew all about Spinelli's saloon. It was frequented by small-time gangsters and petty hot-shots, who during the early hours of the evening lounged out in front and ogled girls careless enough to pass by. There were a couple of rooms in the back where poker was played for small stakes. Upstairs were rooms that were used for more important games. Bubber thought Spinelli's was a fascinating place. He spent all his spare time loafing there.

Jimmy peeped in at the front. Bubber was not in sight. He went around to the back. Bubber wasn't in the back rooms either. His absence from the bar

or the back rooms meant he was upstairs. It also meant he had taken a big up in the world. Spinelli never permitted any but important people to use the second floor of his joint.

Jimmy couldn't go upstairs. Besides, he didn't want Bubber to see him. The only thing he could do was to hide around and wait for something to happen. He waited for hours. Night fell. The young toughs took up their post out in front of the saloon and ogled the passing girls. Bubber's car remained parked in front. Bubber didn't come out. A torn blind on one of the upstairs windows revealed a light burning on the second floor. A tall man in a black suit furtively slipped in by the side entrance. Bubber didn't show. At midnight, he still hadn't shown.

There was a hamburger joint across the street. Jimmy went across and looked in. He watched the hamburgers frying on the grill inside. He could smell their heavenly aroma. Hunger sent sharp pains through his stomach. He hadn't eaten since noon. All he could do was press his nose against the window and watch the hamburgers frying. He had no money.

There was only one customer in the place, a man in a brown suit. He was sitting against the wall in one corner, moodily dividing his attention between the street and the frying hamburgers. Jimmy envied this man. He had the money to buy hamburgers.

Quite suddenly he was aware that the man was beckoning to him. What did the fellow want, he wondered. He went inside. The man looked him over and grinned.

"You look hungry to me," he said. "How would you like some hamburgers?"

"Golly, mister, thanks!" Jimmy gulped.

He ate six hamburgers without stopping. Then he ate a piece of pie and drank a glass of milk. The man insisted on it. "Eat all you want, son," he said. "I was a hungry kid once myself and I know how it feels."

THE man didn't look as if he had ever been hungry. He had the most penetrating pair of gray eyes Jimmy had ever seen. They looked holes right through you.

"You're out late, aren't you?" the man said. "Won't your folks be worried about you?"

"I haven't got any folks, except my aunt and uncle, and they wouldn't worry about me if I never came home," Jimmy said.

"That's too bad," the man said, and there was real sympathy in his voice. "But it's still kind of late for you to be out, isn't it?"

"I can't go home until I find out what Bubber is doing," Jimmy explained. "Bubber is over in Spinelli's."

"Ah," the man said. Again he looked at Jimmy with those penetrating gray eyes. "And who is Bubber?"

Jimmy did not understand quite how it happened but he found himself telling all about Bubber, and the radio ray, and how it had blown up the kettle of stew, and the cat, and how Bubber had stolen it and probably sold it to Spinelli. He expected the man to laugh when he talked about the radio ray. The man didn't. He got very quiet and Jimmy was aware that he was again looking him over very closely.

"You made this ray yourself, out of the parts of old radios?" the man questioned.

Jimmy nodded. He didn't have to answer any more questions, except where he lived. Then the man paid for the hamburgers and left.

Jimmy waited an hour longer. Bubber's car was still parked at the curb,

so Jimmy started home. As he passed the owl drug store on the corner he saw the man in the brown suit in a telephone booth inside.

Jimmy hurried home. A rain was coming up. The low boom of thunder was already rolling through the sky. The rain caught him before he reached home, soaked him to the skin.

"Just a minute, kid," a voice snapped at him as he turned up the walk into the tenement where he lived.

Jimmy stopped. There was a car parked at the curb. The voice had come from that. Two men quickly stepped out of it. Jimmy instantly recognized one of them. It was Finker, the toughest of Spinelli's torpedoes. He didn't recognize the other one until he spoke.

"Where have you been?" the second person demanded.

Jimmy recognized the voice. It was Bubber.

"You shut up," Finker said. "I'll handle this."

Bubber hastily shut his mouth. Something had happened to Bubber.

HIS air of self-confidence was completely gone. His cigar was gone. His beautiful new suit was rumpled. The coat sleeve was ripped at the shoulder. His lips were puffed and his right eye was turning black.

"Come on, kid," Finker said to Jimmy.

"What do you want?" Jimmy demanded.

"What difference does it make what I want?" Finker answered. "I want you and that's enough."

"What do you want me for?" Jimmy persisted. He ducked quickly, but Finker was fast and the edge of the hand clipped him on the side of the head. Finker grabbed him by the collar and kicked him into the car. Bubber sat on one side of him and Finker on the other as they drove away.

THEY took him straight to Spinelli's. They went up to the sacred second floor. Spinelli himself was there. There was another man present, a cadaverous-faced individual in a black suit that Jimmy remembered as having slipped furtively in at the side entrance earlier in the evening.

Sitting on a table in the middle of the room was the death ray.

Spinelli looked at Bubber and nodded toward Jimmy. "This the kid that made that thing?" he asked.

"Y-yes, sir," Bubber said.

Spinelli turned to Jimmy. "Did you make that thing?" he asked.

"Yes, sir," Jimmy said.

Spinelli looked him over carefully. "If you're lying to me—"

"I'm not lying," Jimmy said sullenly. Why had they brought him here, why were they asking him such questions?

Spinelli hesitated and again Jimmy was scrutinized carefully. "You don't look to me like you've got sense enough to invent a rat trap—"

"Let us get down to business, please, Spinelli," Black Suit spoke for the first time. There was authority in his voice.

"Yes, sir!" Spinelli said hastily. "Right away, sir." He turned back to Jimmy. "I want you to fix this thing for me, son," he said, nodding toward the death ray.

"Fix it for you!" Jimmy echoed. "Is it broken?"

"Yes," Spinelli said. He glanced venomously at Bubber. "Bubber told me he made it, and I bought it from him. Then something went wrong with it and it wouldn't work. I thought Bubber could fix it, but when he couldn't, we persuaded him to tell us the truth about it."

In spite of himself, Jimmy grinned. Bubber had got what was coming to

him. Jimmy knew the methods of persuasion Spinelli would use. No wonder Bubber had puffed lips and a black eye and a cowed manner!

"And you want me to fix it?" Jimmy questioned.

"Yes," Spinelli said. His manner had become oily and ingratiating. "That's why we brought you here. If you fix it for me—How would a hundred dollars sound to you for fixing this machine?"

A hundred dollars! It was wealth beyond the dreams of avarice. Under any other circumstances, Jimmy would have jumped at the chance to earn a hundred dollars, or ten dollars, or one dollar. Or a dime. He didn't jump at this chance. If the death ray could be made to work, Spinelli was not going to use it for any good purpose. Besides, Spinelli had never been known to pay a debt if there was any way out of it.

"A hundred dollars would be fine, sir," Jimmy said. "But I don't know what you are talking about."

He had made up his mind. He knew what he was going to do.

"I want you to fix this death ray for me."

"Death ray?" Jimmy said, putting as much astonishment into his voice as he could muster. "W-what is that?"

"That's a death ray," Spinelli answered. "I want you to fix it so it will blow up things."

"Blow up things?" Jimmy questioned. "I don't know what you're talking about, Mr. Spinelli. That is a radio set. It won't blow up anything."

THERE was sudden silence in the room. Jimmy's plan was simple. Bubber had taken the death ray to Spinelli. On the strength of his story, the crook had bought it. Then he had demanded a demonstration. Bubber had been unable to make it work.

All Jimmy had to do was to deny it was a death ray. Spinelli had only Bubber's word that it was something else. And Bubber was a known liar.

"You little rat!" This was Bubber speaking. "You know darned good and well it blew up the kettle of stew. It blew up the cat. Cut out that lyin' before I knock your block off."

Bubber advanced toward him but Jimmy did not flinch. "Did Bubber tell you that this radio would blow up things?" he asked Spinelli. "Is that how he sold it to you?"

Spinelli's face was slowly turning purple. "Yes," he said.

Jimmy laughed. It took an effort of will but he managed it. "Bubber is a big liar," he said. "Bubber gave you a good gypping, Mr. Spinelli."

"Bubber told me—"

"Bubber is crazy," Jimmy said firmly.

"You dirty little sneaking liar!" Bubber shouted.

"Bubber couldn't tell the truth if he had to," Jimmy stated. He knew he was on firm ground here. Bubber's reputation for veracity was non-existent. "Imagine saying a radio set would blow up anything!" he laughed.

His story was going over perfectly. "You can't believe anything Bubber says—"

"Shut up!" Spinelli roared. The crook looked as if he was going to choke.

"Sir?" Jimmy questioned.

"Do you think I would buy anything from Bubber on *his* statement?" Spinelli rasped. "Do you think I am that big a fool?"

"But—"

"I made Bubber give me a *demonstration* of that damned thing, before I bought it!" Spinelli exploded. "I made him try it out, on a shot-glass full of water. I know it will work *because I saw it work*. The trouble was, when I

tried to give a demonstration to this gentleman here," he nodded toward Black Suit, "the damned thing was out of order and wouldn't work."

"Oh," Jimmy said.

"You better say 'Oh,' " Spinelli said. "Now get busy and fix that thing, you little liar, before I tear you to pieces!"

Jimmy didn't move. He was caught but he still didn't intend to fix the death ray for Spinelli. He shook his head. They couldn't make him do it.

Smack! Finker clipped him on the ear, a blow that made his head ring. Grabbing the collar of his ragged sweater, Finker boxed his head from side to side. "You goin' to do what the boss wants?" Finker said. "Or am I goin' to beat you to death?"

Bubber, Spinelli, and Black Suit looked on approvingly.

"All right," Jimmy gulped. "I'll fix it for you."

If he didn't fix it, they would simply beat him to death. He started working on the ray. Inside he was boiling with rage but he had grown up in too cruel an environment ever to show his real emotions. He would fix the death ray. He would also fix Spinelli! He would fix all of them! He began checking the circuits to see what was wrong with the ray.

"Just in case you're thinking of turning that thing on us," he heard Finker say. "Don't forget this."

He looked up. Finker had a pistol in his hand. It was pointed straight at him.

"Remember," Finker said, "I can shoot you quicker than you can make that thing work, so don't try any smart stuff."

THUNDER rolled through the sky as Jimmy worked. Hawk-like, Finker watched every move he made, the pistol always ready. Jimmy knew, if he fixed the ray, his own fate was sealed. The ray was important. The way Spinelli and Black Suit hovered over him proved it was important. Because it was so important, Spinelli would never leave a witness behind him. One death ray was worth a mint. Spinelli, to protect himself, would not leave alive a person who knew how to make such a machine. Jimmy was a dead duck the minute he fixed the ray, and he knew it.

"Show some speed in fixing that thing," Spinelli ordered.

The cone of the heater was pointing upward. Desperately Jimmy wished it was pointing in some other direction, so he could swing it around to cover Finker, to blow Spinelli to bits, or Black Suit. But with Finker's pistol covering him, he knew he didn't dare try to focus the cone on one of them.

"I suggest you hurry this demonstration," Black Suit said. Jimmy got the impression that the demonstration was for his benefit, that Spinelli was trying to sell the ray to him.

"Get the lead out of your pants," Spinelli ordered.

"I'm working as fast as I can," Jimmy answered.

He had already discovered what was wrong with the ray. One of his painfully soldered connections had come loose. That was the result of not having a good soldering iron. It was a simple matter to twist the wire back into place. The ray was ready to work.

He didn't dare tell Spinelli that it was ready. Once the ray had been demonstrated as capable of operation there would be no further need of the services of Jimmy Dolan. Any competent electrician could easily trace the connections on the set, duplicate the design. Black Suit looked as if he knew where to hire an electrician who could be trusted to keep his mouth shut.

Jimmy pretended to work. Finker

was watching him like a hawk. In the silent room he could hear Spinelli breathing heavily, and outside, he could hear the swish of tires on the wet pavement. Somewhere in the distance thunder muttered and rain pattered on the roof as a shower swept overhead.

Then Jimmy had his idea. He saw a way he might get out of this place. He might get himself blown to bits in the process but that was a chance he had to take. He hesitated, waiting for the moment to act. Spinelli, watching him, was suddenly aware that he was only pretending to work.

"Quit stallin', kid!" Spinelli ordered.

"Okay," Jimmy answered. "You asked for it."

He snapped the switch that fed current into the ray. At the same instant, he ducked under the table.

Blooie!

Thunder knocked a hole in the sky. The whole building rocked with the blast. A shower of plaster cascaded downward from the ceiling.

"What the hell happened?" Spinelli shouted.

"Lightning hit the joint!" That was Bubber screaming. It was Bubber who made a mad dash for the door.

Jimmy came out from under the table. His plan was working! The cone of the projector had been pointed toward the roof. Rain had been falling. Pools of rain-water had probably collected on the flat-topped building. The radio-frequency radiations would pass directly through the roof. They would strike the water gathered on the flat top of the building, the rain drops falling from the sky. There would be an explosion.

JIMMY hoped the explosion would startle and confuse the men in the room, give him time to act.

He came out from under the table, grabbed the cone, brought it downward. "Don't anybody move!" he started to yell.

His plan would have worked, except for Finker. Finker had hair-trigger nerves. He saw Jimmy duck under the table. When the explosion came, he guessed what had happened. When Jimmy came out from under the table, Finker started shooting.

Jimmy never got to say, "Don't anybody move!" Finker's first slug smashed into his side before he had a chance to speak.

Agonizing pain shot through him. If he had stopped to think, he would have known that while the first shot might not have got him, the second surely would. He didn't stop to think and he didn't stop fighting. He had been fighting all his life. He couldn't quit now.

He saw Finker aiming the pistol to shoot again. The thug was taking aim with the second shot, making certain it would hit the heart.

Jimmy grabbed the cone, swung it around. The radiations streaming from it were invisible. He couldn't see them. He couldn't be certain the ray was still working. The plaster falling on it might have ruined it. He aimed it at Finker anyhow. It was his only chance.

Whoosh!

Finker seemed to fly in a thousand directions at once. He exploded like the tom-cat had exploded. He was bigger than the cat and the explosion was more violent. It rocked the building.

It caught Jimmy, flung him backward, sent him hurtling against the wall. He struck with a crash, fell. He was almost unconscious, so nearly out that he was aware of only two things—Spinelli and Black Suit lying on the floor against the wall, and the pound of feet running up the stairs.

Feet running up the stairs! It could have only one meaning—Spinelli's thugs

coming to see what had happened to the boss. Jimmy knew what they would do to him. He had whipped Finker and Bubber had run, Spinelli and Black Suit were unconscious, but he still hadn't won. Spinelli's thugs would finish him.

He tried to drag himself to his feet, he tried to run. His legs wouldn't lift his weight.

The door was kicked open.

The man in the brown suit, the man who had bought hamburgers for him, stood there. He had a gun in his hand. His eyes darted around the room.

Jimmy's heart sank. So this man was working for Spinelli too. That cooked his goose.

"Great Scott!" the man gasped. "What's happened here?"

Then he saw Jimmy. "The kid with the death ray!" he whispered. He ducked his head back into the doorway, called down the stairs. Voices answered him.

The next thing Jimmy knew the man was bending over him, gently probing to see where he had been hurt.

"Go on and shoot me!" Jimmy gasped. "Go on and get it over with."

The man stared at him. "Why should I shoot you, son?" he asked. "What makes you think I would shoot you?"

"You're working for Spinelli, aren't you? Isn't that enough?"

"Working for Spinelli!" There was shock in the man's voice. "Kid, you've got me all wrong. I'm not working for Spinelli. I'm working for Uncle Sam. I'm a G-Man."

"A G-man!" Jimmy whispered.

THE man nodded toward Black Suit. "That guy is a spy," he said. "I've been trailing him. What the devil has been going on here, son? What caused those explosions—" Sudden, shocked, surprise was in his eyes. "You don't mean to tell me—that death ray—you really had that thing?"

"I'll say I have!" Jimmy answered. He pointed toward the instrument on the table.

"Great Scott!" the G-man whispered. "No wonder Hirsh came down here. He was after that death ray. No wonder—"

"Hirsh?" Jimmy whispered.

"He's the man in the black suit," the G-man said. There was sudden consternation in his eyes as he stared at Jimmy. "Hey, kid," he yelled. "Don't you go passing out on me. Hey, kid—"

Jimmy's eyes were closing. His last memory was of the G-man hastily but tenderly picking him up and carrying him downstairs. There was strength in the man's arms, and something more than strength, a gentleness that Jimmy had never before experienced.

WHEN Jimmy opened his eyes again he was in a white hospital bed. His side was bandaged. A doctor and a nurse were standing on one side of his bed. The man in the brown suit was standing on the other side. There was frantic fear and worry in his eyes. He saw that Jimmy was awake.

"Kid," he whispered. "Are you all right?"

"Sure," Jimmy said. "I'm all right. I feel fine." Suddenly he sat up straight in bed. "My death ray—" he gasped. "Where is it?"

"Don't worry about that," the G-man grimly told him. "It's being taken care of. You can bet on that. Kid," he looked closely at Jimmy, "do you know you have made one of the biggest inventions this old world has ever seen?"

"No," Jimmy answered. "I didn't. I was just putting together some old radios. I didn't know how important it was." He was lost in thought for a moment. The man in the brown suit bit his lips and worried. "Is it really

valuable?" Jimmy whispered at last.

"Is it really valuable? It's worth a mint."

"Good," Jimmy said sighing. "Now I can get myself an electric soldering iron."

The G-man looked at the doctor. "A soldering iron!" he whispered. "What he wants is a soldering iron. He could just about have anything the Treasury has, and he wants a soldering iron—"

He's delirious," the doctor said. He nodded toward the nurse. She went to a small table, picked up a syringe, handed it to the doctor.

"This will make you sleep," the doctor said soothingly. "When you wake up, everything will be all right."

Jimmy scarcely felt the needle bite his flesh. So far as he was concerned, everything was already all right.

THE END

VIGNETTES OF FAMOUS SCIENTISTS

By ALEXANDER BLADE

Avogadro

The Italian physicist who formulated the basic law on which the entire structure of molecular chemistry rests.

AMEDEO AVOGADRO, the Italian physicist, was born at Turin, Italy, on June 9, 1776. He acquired an excellent education and became a student of the physical sciences. In 1811 he announced his great discovery in connection with the molecular constitution of gases, which is known as Avogadro's law, as follows:

"Under similar conditions of temperature and pressure, equal volumes of gases and vapors contain equal numbers of molecules."

Avogadro was a contemporary of Gay-Lussac, who had discovered the law of combining volumes, and the law announced by the former was a logical deduction from that enunciated by the latter. But, unlike Gay-Lussac's, which can be demonstrated experimentally with ease, Avogadro's law was at the time incapable of such proof, because of the minuteness of the molecule, and the impossibility then of counting those existing in even the smallest of visible volumes.

But though Gay-Lussac at once accepted the deduction made by Avogadro, and Ampère a few years later (1814), it was some time before it was generally accepted.

The practical importance of the discovery lies in the fact that it permits of ascertaining the relative weights of the molecules of all substances that are capable of being examined in the condition of a gas or vapor. They are comparatively few in number, but as the entire structure of modern applied chemistry rests on our knowledge of gaseous phenomena, the importance of the law is evident. It will also be easily understood that, as in gases under normal conditions the molecules must be farther apart than in solids or liquids, their mutual interactions must be comparatively slight, and so the number of causes determining their properties must be fewer, the properties themselves less complex, and hence more easily understood. Thus the study of gases is the simplest and most direct way by which to approach the study of matter in general. In 1886 the Dutch physicist Van't Hoff demonstrated that the law was equally applicable to substances in solution.

Since Avogadro's day it has become possible to actually count the number of molecules in a given volume of rarefied gas. The result has demonstrated the accuracy of the law he enunciated over a century previously. The story of his journey into an unseen world and its accomplishments is interesting, and not so difficult to understand as might be imagined. However, some preliminary explanations might be helpful.

THE ultimate forms of matter as known until recently, have been the elementary atoms; and while these have now been resolved into combinations of electrons and protons, and when so resolved have passed from the domain of the chemist into that of the physicist, the atoms still constitute the only material of nature upon which, as matter, the chemist operates. In fact, he has

comparatively little to do even with them. For, of the eighty-eight known, in less than one-quarter is the molecular condition identical with the atomic, and six of these are the inert gases, which refuse to react chemically either with the other elements or with themselves.

In the majority of cases two or more atoms of the same kind invariably travel and act chemically together. These molecular families—as they might be called, together with the few bachelor or spinster elements who insist on traveling alone, constitute the citizenry of the molecular world which is the operative domain of the chemist.

In all cases these particles of matter (the molecules) are extremely small, so minute in fact as to be invisible under the highest power of the microscope; yet, as stated, their dimensions and weight, and the number of them in a given volume, have been determined with a high degree of accuracy.

One of the fundamental properties of matter when in the gaseous condition, that has been experimentally demonstrated in innumerable instances to be true, is that "at any given temperature its volume (the space it will occupy) is inversely proportional to the pressure under which it exists at the time." Or, expressed in another way, "that the product of the pressure under these conditions and the volume occupied is a constant," that is, for each gas, an unchangeable quantity.

These statements mean that if a gas is confined in a gas-tight container, it will exert a pressure against the interior of its walls in exact proportion to the degree of compression applied in putting it there. Or, if no force is used in putting it there, no pressure will be exerted against the walls except that due to its weight.

The weight of an empty, uncorked bottle is plainly that of the bottle, plus that of the air it contains, and when the latter is unconfined it expands until the force of gravitation stops the process. It is then in the state called "free air" by the mechanical engineer. Now the molecules of a gas—say the atmosphere—are in constant vibratory motion back and forth in short paths, and are only prevented from traveling in longer paths by the attraction exerted by that great mass of matter near them, the earth. Now consider the case of a single molecule.

Under the above assumptions the exact space it occupies is determined by the length of its little vibratory journeys, minus its own size, which is so minute as to be practically negligible. If we begin to compress this air in the bottle, at once the travel of each molecule begins to be shortened, that is, the molecules are packed closer to each other and, in their turn, begin to exert pressure on the walls of the bottle.

Continuing the compression, the pressure on the walls will steadily increase as the molecules are forced together more closely, until at last a point will be reached when they have been driven so near to each other that their mutual attraction is no longer negligible, and becomes of enough importance to neutralize to some extent the pressure the gas is exerting on the walls of the vessel. Just before this state of affairs is reached we have, in the vessel, what may be called the "ideal pressure," that is, the pressure determined alone by the vibratory movements of the molecules, undiminished by their mutual attraction, which plainly gives the length of the journey of each, and from which may be calculated the volume within which each one is free to move.

RETURNING now to the law enunciated at first, to the effect that "the product of the volume occupied by a gas and the pressure it then exerts on the walls of its container is a constant," it is plain that if the figure which represents that constant is known (which is the case, though it is different for each kind of gas), the dimensions of the volume in which each molecule is vibrating can be determined. Then, if the total volume within which the gas is confined is divided by the volume within which each molecule is vibrating, the quotient must represent the number of molecules present. Finally, if the total volume under confinement is divided by the number of molecules therein, the quotient must represent the volume of space actually occupied by each molecule.

Now let the bottle and its contents be weighed. From this deduct the weight of the bottle. The remainder will be the weight of the molecules. Knowing their number it is a simple matter to ascertain the weight of one of them. We now have the number in the bottle and the weight of each. From these, by a process difficult to describe without employing algebraic formulae, the fraction of the volume of a gas actually occupied by its molecules can be determined which, under the assumption that the molecule is a sphere, will permit of its size to be calculated. Other considerations rather too complicated to be explained here have led to the conclusion that under given conditions of heat and pressure one cubic meter of any gas contains approximately 54,000,000,000,000,000 molecules. Since one cubic meter of hydrogen weighs 0.00009 milligram, the weight of a single one of them should be 0.000,000,000,000,000,000,000,016,6 milligram.

If You Enjoy This Magazine You'll Like Its Big Brother
MAMMOTH DETECTIVE
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Juggernaut Jones, COMMANDO

By A. R. McKENZIE

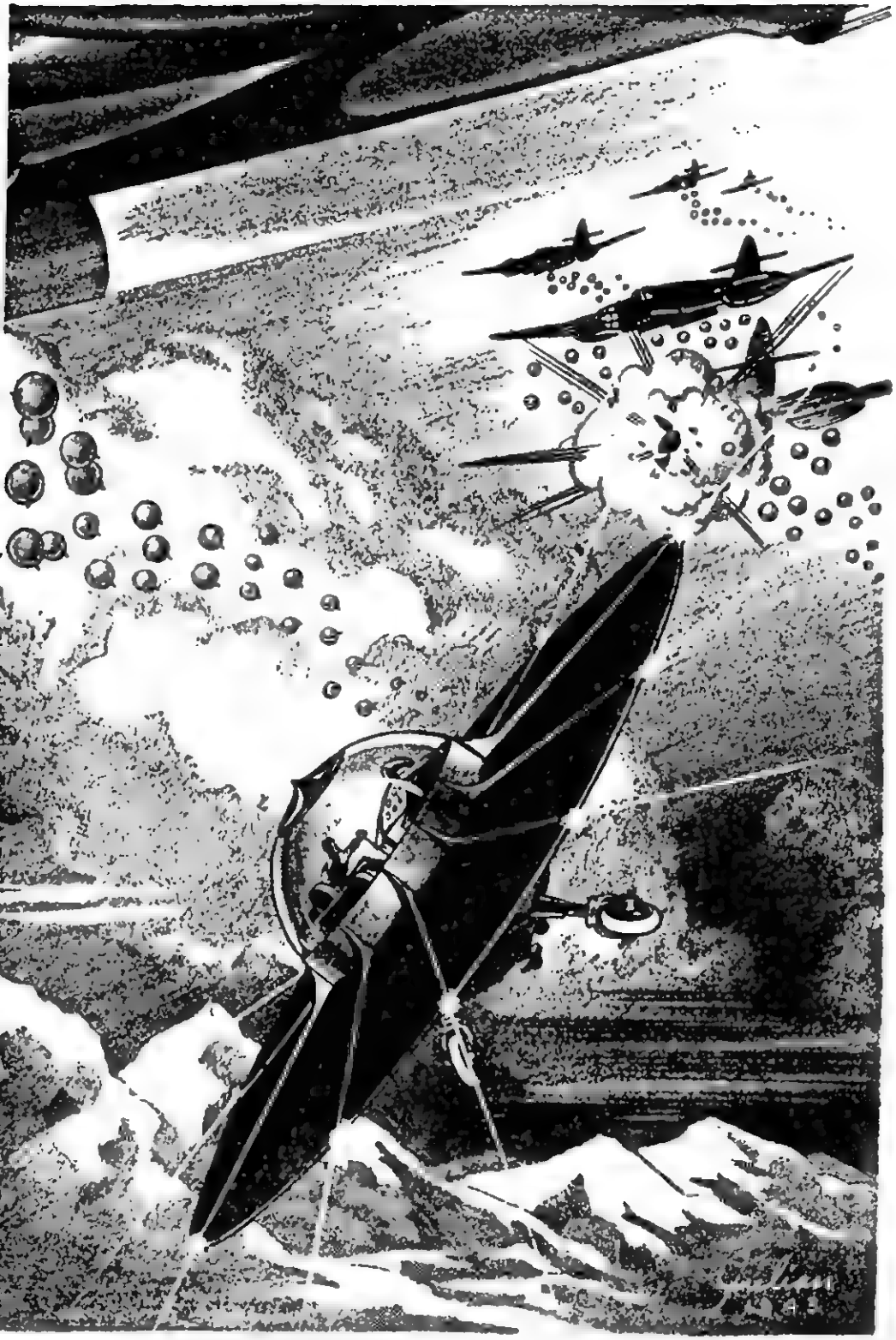
Juggy became a commando, and attacked when opportunity confronted him. But he made a terrible mistake in identifying the enemy!

"THIS," I said, "is discouraging."

"The Black Fog war *is* over," Captain Smith chuckled. "At midnight, you become plain *Mister* Jones. And I," he leered, bending menacingly over the Mag-Marble game I had been studying, "will no longer be a Captain assigned to your command here at Uneek Flier's New Chicago Plant. For three months, Juggernaut Jones, you've goldbricked it as a Major in your boss' private office, playing this crazy pinball game, while I did your Ordnance work. At midnight, Fatso, you'd *better* start running!"

Calm but troubled, I released the last ball in the Mag-Marble game. By deftly manipulating the magnesium-powered motivating jets — and with only two slight tilts of the machine— I contrived to blast the marble across the intricate board, past the complex traps into High-Score.

Promptly, bells clanged and two tiny flags, decorated with insignias of all Interplanetary Nations—including the USA White-Star-On-Blue-Circle, the Martian Red Scorpion and, unfortu-



A cloud of round objects floated from the invader's bomb bay doors . . .

nately, the Setting Sun of Old Japan—broke from compartments and waved in tribute to my skill.

"An amazing invention," I said. "One worthy of joining the long line of by-products created by a company which, in peacetime, manufactures the incomparable hypo-magnesium, rocket-type atmospheric plane — the Uneek Flier. When I resume my civilian job as Field Manager of Intersystem sales—"

"When!" Captain Smith gasped. "After what you did to your peacetime boss, Harmon T., you think *he'll* take you back!"

"My action," I said, "was regrettable but necessary. Harmon T.—like *you* in the days when you were ferrying myself and demonstrators about on my astounding sales campaigns—is a short-sighted man. We would have clashed on matters of construction, plant-routine and such. Therefore, I dispatched him to our Martian Plant to—"

"You," Captain Smith interrupted, "chased him off earth so you could loaf in his fancy office, play pin-ball and, incidentally, try to hoodwink the Company Directors into giving you Harmon T.'s job come peacetime."

"Ridiculous!"

"You said it. Your blunders have driven the Directors nuts. *They'll* never take you back, either."

I moved to the window and looked down upon the vast, inter-plant testing grounds.

"Fate," I sighed, "has again conspired against me."

The noon-day sun was beating through the overhead, ray-blocking canopy—a net-like structure of electro-cables which, in wartime, is drawn over industries to check lethal beams, heat rays and similar offense weapons employed in modern, high-speed, slam-bang warfare. Access to outer areas was possible through a telescoping gate which could be opened *only* upon my written order.

BENEATH the protective web, I was surprised to see, among others, a most unusual atmospheric ship undergoing tests. It was literally, a giant disc or platter upwards of fifty feet in diameter yet scarcely six feet in thickness. Through its flat, plasti-glass top, I could see a bowl-like compartment, filled with benches. A tiny control room was located midships. Although this wide, thin platter was in flight—flat-side to the ground and darting through clouds of toy balloons—not a jet of the sixty rockets was in operation.

No brilliant white exhaust streams could be seen; not one stirring blast of fast-oxidizing hypo-magnesium could I hear.

"Sabotage!" I roared. "Uneek's matchless product has been debased with the silent, ground-contacting repulser ray motors of Globe Gliders, Inc., our bitterest peacetime competitor . . . Mr. Karp!"

"Joe Karp," Captain Smith growled, "is out in New Frisco, doing Ordnance work at the Glider Plant."

"Mr. Karp," I said grimly, "like myself, was a salesman. While I invariably bested him in competitive tests, his unscrupulousness caused me trouble." I glared. "He, sir, is behind this outrage. He has taken steps, under the sham of war-emergency, to pollute Uneek's output so that, in peacetime, he may compete with me on more equal footing . . . This ghastly air-scow—"

"Scow!" Captain Smith moaned. "That, Mr. Five-By-Five, is a new 60-jet, Type-I Uneek Barge which has been built to War Department specifications, with rocket dampers, mufflers and such, and is being readied for se-

cret Air Corps tests. Don't you even *read* the orders I bring you to sign!"

"A Type-I Barge," I protested, "is obviously a war machine. But the Black Fog Invader from Planet-X has been annihilated!"

Captain Smith scowled. "Did you, Juggernaut Jones, ever hear of the Empire of Japan?"

"Certainly. Years before the Interplanetary Union was formed, Japan aspired to Earth-domination. Japan, sir, was soundly thrashed and has been isolated for generations on its Pacific Island. Misguided humanitarians, unfortunately, have succeeded in placing Japan's Setting Sun emblem upon the I. U. Flag of Members, but as for those brown-skinned, decadent peoples causing trouble—Fah!"

"You," Smith said, "talk like a 1940 USA naval commander."

A staff member entered with a communication.

"Quick!" Smith said hoarsely. "Is it Japan? Is it another stab in the back like they've been predicting?"

"This," I said, "is a spacegram from Harmon T. *I*, sir—V. Parker Jones—have been stabbed. Listen:

> "You are being released from war duty at midnight. Am leaving Mars at 12:01 for New Chicago. My first official act will be to kick your (six words deleted) out of my office and four blocks down the street. My second will be to dispatch you to Mercury, on the slowest, juiciest fertilizer-freighter I can find, to be our first and last sales representative *on* Mercury. I'll show you who's boss now, you (deleted) tub!
>
> Harmon T."

"Mercury," Captain Smith chuckled, "is hotter'n the hinges. It has cannibals and pirates and headhunters. Good ol' Harmon T.!"

HE RETIRED. I gazed through the window. The Type-I 60-jet Barge was still darting through the toy-balloon cloud.

"Playing games," I frowned. "On company time. Disgraceful."

The ship spat no flame yet I noticed each time a balloon drifted across one of the apparently inert rocket exhausts, that sphere went hissing over the cluttered field like a ball before the button-controlled magnesium blowers of my pin-ball game.

"Exhaust dampers," I decided, "do not check the rocket's power."

The Barge executed a power sweep just under the ray-checking net.

"That product," I said, "sans seats, *would* make an ideal air-scow. One capable of hauling tremendous loads." I smiled. "Trouble from Japan? If such were the case, men of my caliber would not be released from duty. Unless," I frowned, "misguided humanitarians, who contrived to stitch Japan's insignia upon the I.U. Flag, are again at work."

I drew forth a Plantation Delight. In working my hypo-mag cigar lighter, I was reminded by the flame of my status.

"Mercury!" I shuddered.

I recalled the last stormy Director's meeting and debated the joining of another firm.

"Selfish!" I stormed, after a half hour on the rad-phone, during which I discovered other terrestrial concerns, somehow, seemed prematurely caught in a post-war depression. "Without me, Uneek Fliers would crumble."

I must, for my fellow employee's sake, remain with Uneek.

"A campaign!" I said suddenly. "I must, verily, sell myself!"

To whom? To Harmon T. et Directors in whose hands lay my commercial fate. Stupendous obstacles confronted me. I was (1) in disfavor with

my prospects (i.e.: Harmon T. et Directors) and (2) in danger of being expended futilely and fatally upon a futureless market (i.e.: lethal Mercury).

Quick sales of product, alone, would placate Harmon T. et Directors. But how, in these post-war, retooling days, could quick sales be accomplished? The disc-like Barge sped past my window.

"There," I mused, "but for seats, goes an air-scow. We are, obviously, tooled for quantity production. Somewhere such a market exists. Perhaps deep in Antarctic's inaccessible coal fields."

THERE was an Antarctic strato-express leaving New Chicago at 4:10. While waiting to board, I engaged in a study of the pin-ball games in the airport's recreation room.

"Good salesmen," I said, "keep tab on competitors' products."

Uneek's Mag-Marble creation stood out amongst the competitive machines even more strikingly than did its hypo-magnesium planes in the atmospheric field. It was, however, disgustingly commercial, requiring a coin for play.

Further, while the ball-guiding magnesium jets seemed as potent, the traps, which moved, jumped and snapped steely jaws upon the unsuspecting marble, were discouragingly numerous. Force beams, air suctions and pits completed the chaotic layout.

Even worse, each attempt at a choice "tilting" maneuver of mine caused a metallic voice to scream, "Cheater! Cheater!"

"Unfair," I sighed, and moved to another machine — a tinny product of Globe Gliders.

The ball-driving power was, naturally, Glider's outmoded repulser ray —a spreading, many-part, electro-beam which, when used in planes, is directed downward against the ground, prop-fashion. Quite naturally, when those contact rays pressed upon uneven terrain, the Glider was periled with flight disruptions unknown in a free-flying Uneek.

Here, in Glider's game, the spreading repulser ray made ball control virtually impossible. And that, coupled with the complex traps, led me to the obvious conclusion.

"The unscrupulous Mr. Karp," I said, "had a hand in this."

A small, heavily-tanned gentleman, wearing huge sunglasses, approached.

"So sorry to disturb. If I may play—"

His score, naturally, was even worse than mine.

"Globe Gliders!" he moaned. "*Nothing* they make is any good!"

"You, sir," I beamed, "are a man of discernment."

While sipping our drinks, my friend —a Mr. Olsen from the west coast— shook his head wearily.

"I'm exhausted. Haven't slept a wink in a week."

"Insomnia?" I asked.

"Nerves—and worry." Mr. Olsen yawned. "I've got a plantation out west where I specialize in the giant Vita-Pea, triple-A Grade 1, rich in vitamin X-22½."

"X-22½?"

"The super ultra-violet vitamin that's found only in Vita-Peas." Mr. Olsen frowned. "A potent product but extremely delicate. The Vita-Pea is ruined commercially if it isn't rushed to spot-freeze canneries right after picking." He moaned. "And I start picking next week!"

"You," I said suddenly, "couldn't be having transportation trouble?"

"But I am. I'm back in the mountains, fifty miles from the freezer. Two months ago, I turned most of my air-

trucks into the scrap-metal drive."

"And—"

"I'm facing ruin!" Mr. Olsen wailed. "I need hundreds of sturdy air-trucks but can't find six. Warehouses are empty and companies are still tooled for light strato warplanes." His shoulders drooped. "I'm told Globe Gliders have a barge-type plane which *might* be revamped. The shame of it! Vita-Peas being trucked by Gliders!"

"Horrible!" I shuddered. Then, as so often happens, my agile brain whipped into high gear. "Your problem, sir, is one of heavy-duty transports designed exclusively for short mountain hauls. Something, perhaps, on the order of an air-scow?"

"Exactly."

"Then," I beamed, "your worries are over."

WE DEPARTED space-haste for the Uneek Plant only to be stopped at the main gate.

"Due to the current uncertainty," the sentry said, "I was cautioned against admitting gentlemen such as your—"

"Until midnight," I said sternly, "I, Major Jones, am in command here. Aside, peon."

Reaching my office — ignoring the flunkeys who stared enviously at Mr. Olsen's rich tan—I guided my prospectus to the window.

"Behold, sir," I said. "The ship of ships."

"Not those!" Mr. Olsen cried.

I looked. The testing field, even up under the ray-stopping net, was alive with light 22-jet scout planes. No 60-jet Type-I Barge was in evidence.

"Vita-Peas," Mr. Olsen snapped, "weigh ten pounds each. Those ships would be utterly inadequate. Perhaps at Globe Gliders I'll find—"

"Wait!" I pleaded.

I leaped just as the door swung inward to admit a subordinate.

"Your signature," the man said, helping me up, "is needed on this clearance paper."

I scribbled an "okay," flung the paper on my desk, nodded reassuringly at Mr. Olsen and dashed away. My search ended inside a hanger out on the balloon-littered testing field. Workers were swarming about the Type-I Barge.

"We'll have her out in two shakes," the laborer in charge promised.

Hustling out, I stepped on a balloon. It had two compartments—the outer being filled with a nauseating gas; the inner, a heavy, oily liquid. I stopped, recalling that strange materials have a habit of plaguing my otherwise brilliant sales campaigns.

"It's a military secret," the laborer explained. "Some new type of night flare, I guess. These balloons here, naturally, aren't the real McCoy. A guy tells me, in the real thing, they use a syrupy, sweetish alcohol like what goes into plug tobacco, add a little concentrated sulfuric and process it some way."

Rushing back to the office, I found Mr. Olsen gone. Captain Smith, however, was present and upset.

"Nobody," he said hoarsely, "but Juggernaut Jones could have done it. With the Nips geared to strike, he brings—" His voice broke. "Brown skin, sun glasses—My God, Juggy!" He pointed at the window. "We've got a ship out there, built to secret specifications for a secret purpose. It's to be given secret tests, somewhere, with other makes. Japan's armed; her island's one big fortress. If she breaks loose, our Brass Hats are hinting this Type-I Barge is our *only* salvation. The Nips've been breaking their necks just to *see* one. And you were going to—"

A plate-like shadow flipped past the

window. The Type-I Barge hurtled upward through the telescoping exit gate and vanished westward into the setting sun. Captain Smith reeled back.

"He not only *saw* it—he *stole* it!"

"Courage," I s m i l e d. "No ship leaves here without my—"

"When was the last time you signed anything?"

"Mr. Olsen was here. I 'okayed' a paper, dropped it on the desk—it's gone, I see . . . Mr. Olsen," I explained, "badly needs durable transportation and, sans seats, this Type-I Barge—Zounds! I can't demonstrate with it gone!"

WITH Captain Smith leading, I rushed to the field.

"Hold it!" s n a p p e d the laborer. "That ship *was* cleared. And *you*, Blubberpuss, cleared it." He waved a paper. *"There's* your signature!"

"Who," Smith a s k e d, "took the Barge out?"

"Who knows? Who knows *anything* in this madhouse! Jones has got welders riveting, metal men in plastics, artists shoveling and—"

"Did you see a dark, tired, little man with sun glasses around?"

"Sure. He was wandering all over the joint, taking free looks."

"He's lost!" I cried.

"What I should do," Captain Smith said, guiding me through the twilight to a trim, 22-jet speedster, "is wring your neck. Get in." He vaulted after me. "He went west. He can't hide a fifty-foot Barge under a pillow even if it is thin. He'll maybe head for one of those s e c r e t Rocky Mountain bases they've been talking about."

The net-gate opened and we went streaking west into the night.

"This chase," I protested, "is ridiculous. No competitive product is concerned, and—with Mr. Olsen lost—no prospective buyer." I smiled. "To regain the Barge, we need only to radphone the skypolice."

"Police!" Smith choked. "Juggy, that Barge is our most important military secret. If they find out *we* lost it—" His t e e t h ground together. "We've got to find it—we've got to stop that brown wasp before he spills all. To save USA, the Union and our own necks. *Olsen,* he calls himself!"

"Somebody speak my name?"

I turned. Mr. Olsen stood in the washroom doorway, clutching a pistol.

"Yowie!" Captain Smith yelled. "He had an accomplice!"

As he whirled, his elbow struck a lever. Six potent braking tubes burst into life at our ship's bow, lighting not only the countryside but the circular body of Uneek's rocket-damped 60-jet Type-I Barge which was progressing westward several hundred feet ahead of us. So bright was the rocket flare, even the USA White-Star-On-Blue-Circle markers were clearly visible.

"Why," I frowned, "waste t i m e building float-flares when a Uneek already has a far more satisfactory—"

With forward tubes "Full-on," our craft slammed to a mid-air crash-stop. Captain Smith flattened against the vision shield. I was hurled against him. The added weight of Mr. Olsen, piling upon me, proved disastrous. Captain Smith collapsed.

"A man of violent moods," I explained to Mr. Olsen as we locked the inert Captain in the washroom. "Careful, sir. You have your pistol directed at me."

"What? Oh!" Mr. Olsen pocketed the weapon and joined me at the controls. "So sorry. Nerves . . . I was seeking that air-scow. I must have dozed off while—"

"Of no matter," I said. "Now, sir, to business."

"Business?"

"Surely you haven't forgotten your need for durable low-level trucks to haul your 10-lb. triple-A Vita-Pea—the vegetable which, due to its perishable super ultra-violet X-22½ vitamin, must be canned quickly?"

"Oh, *that*," Mr. Olsen said.

I pointed ahead at the Barge. "That, sir, is your ship."

"Perhaps. But I must inspect before I buy."

"Naturally," I said, and flipped a control.

DUE possibly to a construction error, or my eagerness, the reaction was not according to plan. Instead of "Full Speed Forward," our rocket blasts "Blacked-out" and we plunged into a tight, figure-eight loop—an exclusive Uneek wartime feature accomplished by a staggered-sequence firing of all dampened rockets. I, too, "Blacked-out," reviving later to find Mr. Olsen driving us along deep within a canyon. The light of a waning moon glinted from snow-capped peaks. Above those peaks, I saw, soaring majestically—and evenly, the plate-shaped Barge.

"Picture, sir," I said to Mr. Olsen, "a Glider under like circumstances. Needing a near-level solid upon which to press its flight-sustaining repulser rays, each ridge and canyon herein would create a near-fatal bump. Now a Uneek—"

There was a mad thumping on the washroom door.

"I," Mr. Olsen quavered, grabbing his pistol, "am a man of nerves. If he's released, I might be frightened into forgetting my purpose here."

"The customer," I said, remaining seated, "is always right."

A single weak flare was dropping from the Type-I Barge. Both ship and flare disappeared behind a ridge. There was a thunder-like clap.

"They've crashed!" I cried.

We topped the ridge. A niagara of flame was cascading down a slope yet I saw, to my surprise, the Barge settling unharmed to a landing on a vast, round plateau.

"Plug tobacco," I frowned. "A syrupy, sweetish alcohol processed with sulfuric—"

"Look!" Mr. Olsen said grimly.

The plateau resembled a massive wheel, lying prone. At its center—the hub—were grouped buildings and a line of odd-shaped airships. Where the spokes should have been, I saw a haphazardous collection of equipment, unrecognizable in the moonlight. The outer rim of this giant wheel was formed by myriads of foot-thick steel posts, evenly spaced about ten feet apart to create, literally, a stupendous picket fence. The picket-posts reached at least one hundred feet into the crisp mountain air and a familiar ray-checking canopy of cables was stretched like a trapeze performer's net from those post-tops across the entire plateau-wheel.

"This," I said, "is confusing."

Mr. Olsen landed us just short of the towering, picket-post fence. As we disembarked, his tiny brown hand dropped to his pistol.

"You know what this is?" he asked suspiciously.

Captain Smith had gone berserk; Mr. Olsen was tottering. The situation, obviously, required delicate handling.

"A snow-bound settlement," I soothed. "And what better ship, sir, could have been chosen to truck in supplies?"

There was a crash. Captain Smith lunged from the speedster. Fists flew. In a flash, Mr. Olsen, arms bound and mouth gagged, was cringing before us.

"We," Smith said, brandishing Mr.

Olsen's pistol, "are about to steal back that Barge!"

"Stark mad!" I breathed. "My protests would be futile."

I LED the way between two posts of the over-sized fence, noting again that the carbo-steel pillars, set in iro-concrete, were at no point less than ten feet apart.

"An abode of giants," I decided.

Inside, within the wheel's spoke area, we encountered difficulties. Ghastly pits yawned; barriers were flung about senselessly; and often we found ourselves traveling blind alleys between spike-studded walls, or passing beneath what seemed to be steel skeletons of buildings which lifted clear to the overhead ray-net.

Arriving at length at the outer buildings of the hub proper, we hugged the shadows. The outlandish ships—none but the Uneek recognizable—were lined between two hangars. Hearing low voices within, I debated crying a greeting.

"One peep, Juggy," Smith hissed, "and you're dead!"

Noting that the madman was holding his pistol against poor Mr. Olsen's head, I refrained from shouting.

"A dead customer, even though right," I said, "is worthless."

Uneek's incomparable Type-I disc Barge was at the line's far end. As we crept upon it, I felt something tap my hand. I looked up. A ball-shaped ship was dropping sluggishly towards an entrance gate in the defense net.

Shocked, I watched the outrageous, thirty-foot sphere—a Glider—continue through and settle alongside our Barge. An exceedingly thin gentleman staggered out, clutching his head. Had it not been for two soldiers who held his elbows, Mr. Joe Karp, unscrupulous peacetime peddler of an inferior product, would have fallen.

"Whooie!" I heard him say.

"Wow!" Smith babbled. "They're kidnaping—"

"A miracle," I whispered to the bound Mr. Olsen, "that Mr. Karp still lives! Sir, be witness what happens when a ray-supported Glider is driven over rough country." I chuckled. "Mr. Karp, sir, who has come to annoy you with his sophomoric sales talk, is air-sick!"

"Shuddup!" Captain Smith hissed.

Mr. Karp was led away. We moved to the Uneek Barge. It was a breath-taking sight. A rocket-studded disc, fifty feet in diameter yet not over six feet thick. As we mounted the rim-step, the spaciousness of the hold was apparent beneath the plasti-glass top.

"Sans seats," I said to Mr. Olsen, "you could truck twenty tons."

Obeying Smith's command, we crept in and proceeded down an aisle to the centered control room. With one minor exception, the board was standard.

"Blast off, Juggy!" Smith whispered. "I'll watch Tojo."

IT WAS unfortunate that the one minor exception, dealing with control-lever arrangement, dealt with the take-off. Even then I might have rectified the error had I not been so alarmed over the unethical treatment being accorded my prospect.

Too, my self-selling campaign was vivid in my mind. To prevent myself et talents from being expended fatally on hideous Mercury—with the result that Uneek Fliers, Inc. would crumble and thousands would be jobless—I must win back into the good graces of Harmon T. et Directors.

Quick sales, alone, would accomplish this.

Seeming impossible, I had, with the aid of a pin-ball game, uncovered a

market which would have saved all. Captain Smith's babblings of spies and secret bases was as nothing compared to this frightful mishandling of a prospectus.

"A cardinal selling rule," I frowned, "is that the customer is always right. Mr. Olsen, I fear, will be difficult."

It was not impossible, however, that a masterful demonstration now, following Mr. Karp's ludicrous effort, might save the day.

"So be it!" I said and flipped a lever.

Instead of "Take-off," the lever was keyed into a mid-air maneuver even more intricate than that of the speedster. A "Flip-over" to be exact. Although a platter, such points as bow, stern, port and starboard were identifiable from the pilot's centralized seat, so as I flipped the lever, the dampened, heatless rockets, seated in what to me was the Barge's starboard rim, burst into full power. The port rim jets, however, remained inert. As a result, the huge platter reared up on that port edge and flopped over on its unbreakable, plasti-glass back, landing diastrously upon a neighboring ship, which, unfortunately, was not Mr. Karp's Glider.

The platter-barge flipped down the entire line of fliers.

To complicate matters, a spark was struck and suddenly the area beneath the overhead ray-net, from the picket-line fence across the barrier-choked spoke region to the hub buildings, was ablaze with light of flaming fuel plus all burnable material in the crushed ships.

"Nobody," I heard Captain Smith scream, "could do such things but Juggernaut Jones!"

The final flop hurled me backward atop Smith and the weight of Mr. Olsen, who tumbled on me, again proved disastrous. Captain Smith collapsed. I ripped the bonds from Mr. Olsen's wrists.

"Accidents," I chuckled, "are bound to happen. Now, sir—"

Yelling gibberish, the man dived for the pistol.

"Nerves," I sighed. "Augmented by worry and fatigue." Angry voices lifted outside the ship. "Perhaps," I added. "A dash across these mountains, shaming Mr. Karp, would impress Mr. Olsen."

A heat-ray hissed past my head. Mr. Olsen was hurtling towards me, smoking pistol in hand.

"There is a limit," I said uneasily, "to nerves. And, perhaps, even to a customer's judgment."

Agitated, I yanked two levers. The Barge streaked upward, crashed against the suspended ray-blocking net, rebounded and leveled off mid-way between net and ground with Mr. Olsen, who had somehow struck his head, sprawled limply at my feet.

"Discouraging," I confessed. "The ray-net checks solids, too."

I GLANCED out over the mangled spoke-area to the picket fence. All between was, of course, blanketed by the net. Beyond the fence, however, lay open territory.

"Through the fence, then," I said, "lies freedom."

A ball-shaped craft leaped suddenly from the wrecks below. Myriads of repulser rays stabbed as suddenly against me.

"Mr. Karp!" I cried. "He rises to battle." My eyes glinted. "A challenge; a race. To the first through the fence goes the sales!"

I flipped all "Forward" levers. My vessel zoomed into the spoke area. Ahead loomed a skeletonized building. I banked expertly around the girders, threw on "Full-speed" and was sud-

denly doing backward mid-air flips under the impetus of a force beam which had roared from the ground below.

Another beam pinned me against the net. Blasting loose, I was abruptly flat on the ground, drawn there by a terrific suction. I ripped free just as the entire sector burst into writhing, grinding activity. Girders, weaving insanely, spread to form inviting lanes only to mash together in a manner which would have crushed even the rugged 60-jet Barge. Red force beams lashed wide arcs everywhere. Below, electro-volts arced from all barriers; spiked walls thundered together like huge clapping hands.

"Suicide," I shuddered, "to walk there now."

Glancing behind, I saw Mr. Karp battling both to evade a girder trap and to reach me with his spare repulsers. Beyond him, heavy-duty heat cannon were being unlimbered in the hub. Gun snouts lifted. A blast cast my ship straight through a steel-jawed trap.

"This," I frowned, "should be a crisis."

A sensation of familiarity struck me. Traps, force beams, heat blasts!

"The pin-ball game!" I cried. "I am the ball. The girders, death rays et all are the traps. My rockets represent the force which will either drive me into a trap and death, or through the fence to high-score, and freedom!"

My jaw set. By winning through—proving durability of product and besting Mr. Karp—Mr. Olsen must capitulate. His order for scows to truck Vita-Peas, impregnated with the perishable super ultra-violet X-22½, would placate Harmon T. et Directors. My continued service with Uneek Fliers would enable my company to surmount the post-war depression, thus saving fellow workers from starvation.

And if Captain Smith *was* right about military secrets, I might also be saving USA and the Union.

"A commendable objective," I nodded. "One worthy of my effort."

One thing alone troubled me. Not one of the strange balloon flares of the testing ground was in evidence. Was *no* unknown quantity to plague this campaign?

"Plug tobacco," I frowned. "Syrupy alcohol, process, sulfuric."

I WAS a ball in a trap-choked pin-ball game. Mr. Karp was hard astern, his repulsers beating me. Heat cannon and force beams lashed me.

"Forward!" I thundered. "To the fence—and sales!"

Forward I plunged. Cannon belched; rays blasted; traps snapped to no avail. My years of study over commercial pin-ball games assured my victory.

Dodging, darting and diving—with heatless rockets spitting unseen force patterns—I neared the last trap—a tangle of lashing girders which, unfortunately, offered not one safe lane. The girders, however, seemed frail. Abruptly, countless focused repulsers slammed against my stern and only a miraculous, last-second play of forward braking tubes saved me from being hurled straight into that churning trap.

I glanced behind. Mr. Karp's ball was charging upon me.

"Foul tactics," I frowned, "merit similar action."

I cut speed, adjusted rockets to a mid-air hang and tilted my bow up, baring the Barge's wide, flat back to my pursuer. Mr. Karp, redoubling his speed, fiendishly drilled that inviting target. I held stubbornly, rockets laboring, plasti-glass humming.

"The supreme test of durability!" I gasped.

On came that ridiculous Glider sphere. Slower now as more of its rays

piled upon me . . . slower . . . slower . . . and suddenly there was only two air-giants, hanging motionless, straining one against the other, scant inches from that writhing girder trap.

Every forward ray of the Glider was hammering my Barge's back; every stern ray was "Full-on."

Yet my gallant craft gave not an inch.

"Triumph!" I cried.

I cut rockets and side-slipped. Freed of support, the Gliders' forward repulsers darted wildly ahead. he Glider catapulted straight into the twisting trap, snapping off girders, spinning, floundering—cutting a wide path through which I streaked.

And as I zoomed above the faltering Glider into the clear, my eyes fired. The last trap. Ahead, beyond the picket-like line of posts lay high-score and—

"Victory!" I chuckled.

My chuckle died. Approaching, the posts seemed to creep together. Cutting altitude, I saw my error. The posts were not moving. I had merely forgotten I was piloting an airship fifty feet in diameter, and that the posts were but ten feet apart. I must, then, drive a fifty-foot ship through a ten-foot gap. I could not rise above the hundred-foot fence because the ray-net was anchored to those post-tops. Neither could I blast through solid rock below.

"This, then," I mused, "is the true crisis."

SOMETHING struck a hideous blow against the upper surface of my ship's starboard rim. I looked. Mr. Karp, his brain crumpling under another defeat, had hurled his spherical craft down upon mine. Simultaneously, something equally potent crashed against the underside of my port rim. It was a steel shaft, leaping from a buried cylinder in an attempt to pin my flier against the net above.

Both blows, fortunately, were off-center, yet the result was disturbing. Still rocketing forward, my Type-I Barge heeled over—starboard rim down where Mr. Karp had struck it; port rim up where the shaft had knocked it. For one ghastly second, the disc ship stood exactly on edge. I lunged for the stabilizer control but caught, instead, the "off-rockets" lever. Robbed of support, the Barge thudded, edge-first to the ground, wobbled sickeningly, then given impetus by its momentum, went rolling like the wide but thin platter it was, on through the ten-foot gap between picket posts to—

"Victory!" I cried.

A glance behind disclosed Mr. Karp's thirty-foot ball jammed hopelessly between posts. I flung my battered air-scow into the air.

"Victory?" a voice asked. Mr. Olsen crouched beside me, one quivering brown finger pointing s k y w a r d. "Look!"

Floating, like snowflakes, from the bomb-bays of hundreds of powerful atmospheric warships, came myriads of the odd toy-balloon flares.

"The secret weapon!" Captain Smith croaked, staggering up. "Both countries combed history to find a simple, quickly-made force with which to crack the ray-nets. Those float-type flares, they say, may be the answer." He pointed. "It's a pattern bombing. We're penned in. If those globules can eat through a net, this ship won't—"

"A crisis!" I cried. "Transcending *all* crises!"

"We're trapped!" Captain Smith screamed. "Do something!"

The balloons *were* closing in. Round balloons.

"Pin-balls!" I shouted. "Verily, it's the game—as it should be played. I, now, am the controlling force. The player—and experienced!"

I tilted my ship—a favorite maneuver of mine. With a skill only years of study could produce, I played my rocket-firing board. Jets, expertly lined, spewed heatless power. Coolly, I aimed; confidently, I fired. Ball after ball, blown dead center went looping far aside.

I cleared a space above me and moved my ship upward. A warplane, attracted by my matchless play, dropped to investigate.

"High-score!" I breathed.

PICKING a floating balloon, I tilted my machine, aimed and let fly. The balloon zoomed up and caught the battleship squarely on its keel.

There was a blast which shook the mountains; a flame which wilted all eyes. The battleship disappeared, as did the vessels above it, and those still coming over the westwardly mountain range. In a like manner went all the bombs which I had blown from our immediate vicinity.

"Plug tobacco?" I frowned, as our 60-jet Type-I Barge, fleeing that holocaust of sound, flame and expanding gases, caromed off one mountain peak against another and dropped, smoking but uncracked, into a huge snowbank. Suddenly, my agile brain whipped into top speed. "An ancient force simply made? Zounds, what is used in plug tobacco? Glycerine! What is glycerine but a sweetish, syrupy alcohol! And what is produced by its cold nitration in the presence of concentrated sulfuric? Nitroglycerine, sirs. An explosive, which like all explosives, is much too dangerous for common use in these days of violent speeds, jolting stops and penetrating force beams. Nitroglycerine is, I recall, an extremely unstable product . . . Pin-ball games," I ended modestly, "are not without merit. We are free!"

"Free!" Mr. Olsen cackled insanely. Captain Smith suddenly gripped my shoulder.

"Juggy. *Look!*"

A bit of debris from a shattered battlewagon was tumbling into the snow beside us. Painted upon it was the White-Star-On-Blue-Circle crest of USA. Other fragments plunged about us. All bore the White-Star of USA—a nation once boasting the mightiest atmospheric fleet in the known universe.

"They, too, learned of this secret base," Captain Smith whispered. "Our *own* fleet came to blow it to bits. To save us. But you—" His eyes went glassy. "Our fleet destroyed. Thousands killed. USA and the Union doomed . . . This one, Juggernaut Jones, you'll *never* blunder out of. Never!"

POSSIBLY due to strain, I neglected to land my Barge until requested by an airpatrol which intercepted us somewhere north of the Hudson Bay Region. The terrestrial cable which, sometime after, was thrust through the bars of my cell was, of course, anticipated.

Harmon T. Dee, once my peacetime superior, was the sender:

"Be advised, Uneek Fliers adopting your slogan:

The Customer Is Always Right!

Interplanetary Union conferring on you Honor Medal of Interlocking Pinballs for destroying Jap war fleet which, under false markings, was en route USA Capital to deliver sneak attack . . . Air Corps jubilant over your success in piloting a Type-I (Invasion) Barge through a replica of Japan's heretofore impenetrable Island defenses, secretly built by USA Air Corps on isolated testing ground. Scores of Uneek Invasion Barges will be used by picked Com-

mando troops for final crushing blow of Japan proper . . . Air Corps diverting five-hundred ships, sans seats, for trucking wartime crop of Vita-Peas to freezer . . . Messrs. Karp and Smith tendering public apology both to you and to Mr. Olsen, a loyal Swedish-American citizen now recuperating from fatigue, worry and shock, plus an overdose of X-22½, the super ultra-violet (skin-tanning) vitamin . . . Advices reaching us confirms previous rumor of giant new post-war market. Situation calls for man of vision, strength and daring. Directors unanimously picking you. Am forwarding one-way ticket on fertilizer Space-freighter AROMA (only ship available).

"Good luck on Mercury, you great big wonderful (deleted)!

Harmon T."

THE END

★ THE MICROSCOPE ★

IT IS scarcely realized by those who have not seen how great and awesome a world exists in sights not visible to the naked eye. No human being alive can understand or even hope to see it all, for as grand and great as is our world, the world of the invisible is greater. The telescope enables the wizards of astronomy to take us far away into space, to correctly determine distances and the nature of the stars and planets about our beloved Earth.

The microscope is that instrument which takes us into smaller worlds. One can sit looking at smaller worlds, even in a drop of water, hour after hour, and still not see everything. This patient peering through the eyepieces of those instruments has indeed been a boon to mankind. By this gazing, we have come to see the causes of many of the most fearsome, awful and fatal diseases. By this effort, we have learned more about ourselves, how we work and of the amazing mechanism which is the human body. The use of the microscope has not been restricted to medical sciences alone, however; diamond experts, metallurgists, and chemists find it exceedingly handy to have around, especially in determining the differences in closely related compounds.

We wish to know just what the microscope is; it is about one and one half feet high, possessed of a mirror on the bottom and lenses through which the light passes. The lenses are the crucial parts, for by their properties the magnification is realized. Without entering into the science of optics, it might be well to realize just how much magnification is obtained. Most ordinary microscopes will magnify approximately five hundred times, a good example is, if one would or could, place a penny under the microscope, it would appear the size of a basketball floor or field, one hundred twenty feet in diameter. This length is just about twice as great as an ordinary swimming pool. Under more powerful microscopes, a penny would have the size of Soldier's Field in Chicago. High magnifications with a microscope are almost fifteen hundred times the size of the object being observed.

Many men contributed to the making and perfection of the microscope. Descartes, a French physicist and philosopher, was one of the first to issue a real diagram of how a microscope should be built. First, however, the plain people had experimented with ordinary magnifying glasses. The Janssen brothers, two Dutchmen, made the first real microscope, and did a very good job of it too. By the mere changing of the arrangement and position of the lenses and the mirrors, with some additions by Galileo, Hooke and other students of optics, our present microscope took form. The latest use of this great, almost essential and even vital instrument is in criminology. With the application of this new mode of investigation, life for the underworld will become uncomfortable.

Much scientific history of the past one hundred years has been written by this instrument. Yet science does not stop, does not even hesitate. Already a newer, mightier instrument is being brought to the fore. The electron microscope, no longer in its baby stages, using showers of electrons to bombard and take a picture of its object, has such abilities as to amaze the most incredulous citizen. This instrument, once huge but now being made smaller in size, is possessed of the ability to enlarge what appears to be a dot under the ordinary fifteen hundred magnifying microscope to a figure six inches in diameter. This instrument can magnify any object fifty thousand to one hundred and fifty thousand times its original size. It has the ability to magnify the penny to the size, in appearance, of a town whose area is three square miles. This amazing instrument has scarcely been put to work, yet it can claim the honor of having photographed a single piece of smoke, a single influenza microbe; truly this is the ultra microscope. It must not be forgotten that science does not, dares not stop. Greater, more important but less sensational discoveries are being made. Let us harken well to men who make them.

There was a blinding flash as the two ships crashed

IN SPACE

By FESTUS PRAGNELL

No one could have foreseen the things that were to happen when these two space ships smashed together out in the void...!

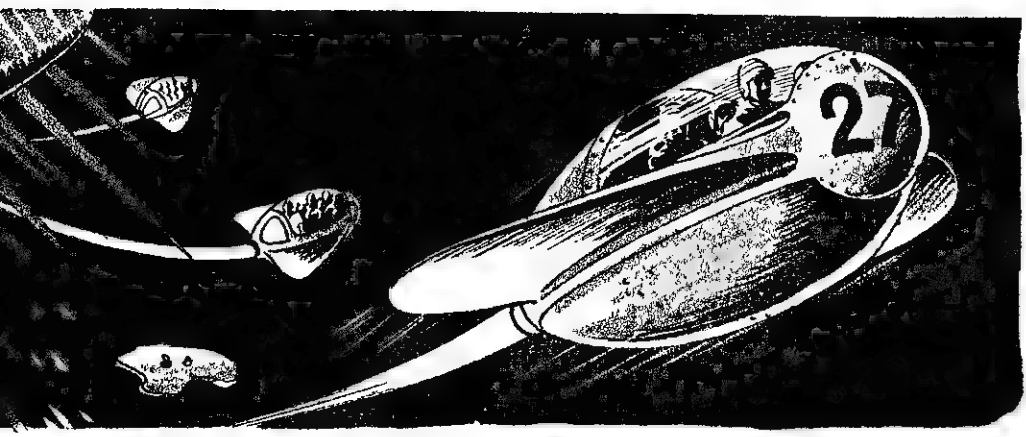
"*Brrrrrrrr-up! Brrrrrrrr-up! Brrr-rrrrr-up!*"

The alarm bell jangled its harsh warning. Danger threatened the space-ship, bound from Callisto to Earth with a cargo of ore.

Reg Whistler sprang out of bed, awake and alert in one second. He had been dreaming a lovely dream about palm trees, golden beaches, hot sun and girls in the *most* scanty costumes. In an instant all that was gone. And he was Reginald Whistler, space-pilot, with the urgent job before him of saving the ship and all its crew from threatened collision in space.

All the trip he had ate and slept beside the controls, not daring to leave them for an instant, waiting always for the alarm bell to give its unmusical scream. For the peril of collision in space always menaces space-ships. Wandering meteorites are ever flashing past at terrific speeds. Human eyes are seldom quick enough to see these bodies if they happen to be dark. Only the most delicate instruments, recording the slightest gravitational pull, can give warning. And then one second may make all the difference between safety and disaster.

When we got back, Reg told himself, there would be girls, beaches, sunshine, moonshine, dances and every other kind of jollification for a very long time to recompense him for the long weary



weeks he had spent chained to his post. But for the present there was this meteorite to attend to.

Although, no doubt, it would prove to be passing the ship at a perfectly safe distance. Like scores of others that had rung his bell and snatched him out of beautiful dreams.

In front of him the nose of the ship was transparent. He looked to see if he could see this wretched meteorite.

"Holy jumping crickets!" he gasped.

Before him was a space-ship of strange shape. It was fat for its length and had twelve rocket-tubes. At the rear stuck out shock-absorbers like the buffers of a railroad train.

No such ship had ever been seen before, so far as Reg knew. And Reg was supposed to know all there was to know about space-ships. In fact, like the lady who saw kangaroos for the first time, Reg felt like saying, "I don't believe it! There ain't no such ship!"

The rockets of the stranger were firing steadily, and there were lights glowing in those portholes that were turned away from the sun.

The stranger was increasing in size rapidly. That meant that it was approaching fast. Chimera or no chimera, illusion or no illusion, it spelt danger. Without hesitation, Reg pressed the general alarm switch.

AT ONCE a dozen bells in various parts of the ship set up an urgent clamor. "Bong! Bong! Bong!" It was the signal to all, "Danger! Prepare to abandon ship!"

Men leaped out of bed. Men in the act of eating or drinking dropped food or drink on the floor and ran. All raced to their appointed places in the space-lifeboats, ready to blast off at once. Captain Lovell never sprang lifeboat drill on them without warning. This was the real thing.

At the first note Captain Lovell shot out of bed like a rocket and was through the door and at Reg's elbow before the echoes died away.

"What is it, Whistler?"

Reg pointed.

"What the blue blazes!" gasped Lovell, gaping at the amazing stranger that did not exist, according to all the training and experience of good space-captains. Then, becoming practical once more, he threw the second alarm switch.

"Abandon ship! Abandon ship!" hooted the final warning.

Captain Lovell took no risks. If all went well it would be easy to pick up the lifeboats once more. Meanwhile, let the men get to safety. If safety it was. Because, of course, with a ship so completely strange as *that* ship you did not know where you were. Anything could happen.

"Owfaroff?" he rapped.

"Ten miles five furlongs," Reg read on the scale of the radio-echo.*

"What? You sure?"

Reg pushed the instrument into his hand. In one movement the Captain returned the indicator to zero, aimed and turned the handle.

"Ten miles four furlongs," he muttered. "That makes those exit ports barely four feet high. The men on that ship must be midgets only three feet tall."

*The Radio Echo is a means of measuring the distance of an object in space. In principle it is rather like the means used on ships of measuring the depths of the water without using sounding-lines. The sound produced on the ship echoes back off the bottom of the sea, and the time that elapses before the echo is received gives the depth of the water. The Radio Echo sends forth a radio impulse, and measures the time taken before the echo comes back from the distant object. Such instruments have to be accurate to a millionth of a second. The only other method is triangulation, which is slow and difficult work, and, if there is any wobbling or rotary motion of the ship, almost impossible. In practice all space-ships wobble and rotate.—Ed.

"Three seconds between the two readings, one furlong difference in the distance," Reg calculated swiftly. "The two ships will be at their closest to each other in two minutes."

"Thereabouts," agreed Lovell gruffly.

Sudden roars, stopping suddenly, told that the lifeboats were gone.

SWIFT calculations, made almost automatic by long training. Distances, directions, two different velocities. Point of greatest danger. Rule of space directing them which way to turn. A point in the vault of heaven to aim at. . . .

The brains of the two men worked fast.

"N. W. 90 I make it," Lovell rapped.

"I agree," Reg replied at once, proud to be as quick as the Captain.

They pressed buttons, threw switches. Nose rockets flared, turning the nose of the "ESSTRELLITA" in the direction worked out as the correct one. Rear driving rockets belched as the ship was pushed on her new course. She traced a fiery arc.

Reg was just breathing freely once more, telling himself that the danger was over, when Captain Lovell looked out of the window.

"Hell's bells!" Lovell roared, in real alarm. "Are they mad? They'll crash us!"

Reg looked, and gasped.

For the stranger too, had turned, and turned, by the worst bit of space—navigating possible, right into the path of the "ESSTRELLITA."

Collison was now unavoidable.

All that could be done was to reduce the effects of the shock. Both ships turned stern on, rockets going full blast. Nothing could be seen but a sea of fire as the rocket exhausts of the stranger surrounded them.

Then came a time of waiting for the shock, a few seconds that seemed to last forever.

CRASH!

REG picked himself out of the acceleration couch in which he had stretched himself. The shock had knocked him out, perhaps for a second only, perhaps for several minutes. He couldn't tell.

Lovell was lying on the other couch, a dazed expression on his face. His eyes moved, but he took no notice when Reg spoke to him.

All was very still. The shock had automatically stopped the rocket-firing mechanism. One wall of the control-room was folded up like a concertina. Reg realized that Lovell and he were very lucky to be alive. One serious hole in that wall and air would have streamed out into space and they would both have died.

The air *was* very thin. Yes, air could be heard whistling out of small holes. He must plug the leaks before the air thinned dangerously. D a z e d l y he worked with patches, plugs and rubber solution.

Then he sprinkled the Captain's face with cold water.

"Brrrrrrrrr!" said the Captain. At last he came round.

"What the devil? Oh, my head!"

Then he looked round and remembered.

"Thanks, boy. . . . Well, any way, we are not angels yet. Angels would not have a headache like I have." He grinned ruefully.

"I wouldn't try to force those doors open," he said, presently, in a weak voice. "I'll bet there is no air on the other side of them. Oh, how do you do? Look Reg. We have a visitor."

Reg thought for a moment that Lovell was delirious, then he looked where the other pointed, out of the transparent

nose. A man was there right enough. A man in a bloated space-suit, a space-suit of strange pattern. He was less than three feet long, with very stout legs. A very deformed midget in fact, from Reg's point of view. To his back was attached a thin cord, and in the sole of each foot a tiny rocket jet could propel him slowly in any direction. Behind him came two others.

"What do you make of them, Whistler?"

"Never seen anything like them before."

"Nor I. They may be anybody, up to anything. In my opinion they are certainly up to no good. That was as much like a deliberately worked ramming in space as anything I ever saw."

"Deliberate?" gasped Reg. "But surely they would not wreck their own ship on purpose."

"Wreck their own ship?" Lovell laughed grimly. "Don't you believe it. That ship of theirs is big enough, and heavy enough, to run ours down and not even feel the shock."

HE PICKED up the radio-telephone, which still worked.

"Hello lifeboats! Hello lifeboats! Keep well away from the wreck for the time being. Unknown midget men boarding. All are armed with odd-looking guns. May be hostile. Keep out of the way and, whatever happens, look after yourselves. I expect either to be killed or to be taken prisoner. In either case make no attempt to help me. Keep away. Good luck, and, I think, goodbye."

There was a scraping and grinding of metal.

"Our visitors," said Reg, trying to be as brave as the Captain and treat it as a joke.

"Quite." Lovell mused quietly, showing no sign of fear. "Visitors from Jupiter I reckon. Those little bodies and powerful legs seem to be designed by nature to match very heavy gravitational strains. That means Jupiter."

"But it's supposed to be uninhabited," Reg objected.

"Has anyone ever been to see?" Lovell asked.

"They can't. Any Earth ship going close to the giant planet would be unable to pull away again against the mighty gravity pull."

"Quite," said Lovell again.

Soon the midgets had opened the door of the control room. A dozen or so of them poured in.

Reg looked into their faces, and felt a chill at his heart. There was no friendliness in their owlishly solemn eyes. Not even among themselves did they smile. A grim race.

They began pulling machinery and equipment to pieces, curiously. Some of them began, roughly, to empty the pockets of the two Earthlings. Reg pushed one away, and got a nasty kick on the shins. One pointed his odd pistol at Reg's nose. Reg's stomach felt horribly sick for a moment. But a harsh command caused the pistol to be lowered.

Everything in t h e i r pockets was taken away.

"No resistance, Whistler," urged Lovell. "It's galling, but we're helpless. We dare not start anything."

No doubt he was right. But it was difficult for Reg to stand meekly and allow everything he valued, money, notebooks, watch, private papers, photographs, all to be rudely taken from him. Without those papers it would be difficult to prove who he was and get another berth as space pilot.

Two space-suits were found in a cupboard, pulled out. By gestures the two men were ordered to put them on. Then, by jerkings on their arms, push-

ings and pointings, they were made to accompany the midgets out of the pilot room, along the ship's corridor and out of an air-lock.

Now they were in free space, jet-black, star-studded space. Reg saw that the two ships had become locked together by the impact, and space-suited little men were working at the join, cutting their ship free. The Jovian ship, he saw, was immensely bigger than the Earth ship, and the collision had not apparently damaged it.

Towed by ropes, the midgets pulled the two Earthlings to an air-lock in the side of their own ship, an air-lock so small that both Earthlings had to crawl in on hands and knees. Then they went along a low corridor and into a windowless compartment where they sat on a bench. There was not enough room to stand upright under the low ceiling.

The door was locked on them.

CHAPTER II

Aboard the Stranger

"CHEERFUL sort of prison, this," Reg muttered.

"Might be worse," Lovell said. "At least we've got light and a water tap."

Reg could not see much consolation in that. Both men sat silent and morose. There was nothing to do, or to say.

The driving rockets of the Jovian ship roared loudly, then softly. They felt the ship swerve under the deflecting push of nose rockets.

"Chasing the lifeboats, the swine!" Lovell barked suddenly. "That's what they are doing."

Presently the crew of the first lifeboat came dejectedly in and began pulling off space-suits.

"What kind of a ship is this we're on, Cap'n? They rammed our lifeboat, then pulled us out of the wreck."

"What?"

"It's the truth. The little pirates smashed us. Johnson got a clout on the head from the butt of one of those queer guns of theirs."

Blood was oozing from the bruise.

"Wish I knew who they were."

"Inhabitants of Jupiter," Lovell growled. "No doubt about that."

Presently the crew of the second lifeboat came in. They had tried to escape, and the Jovian ship had rammed them heavily, injuring most of them. Finally one man, nearly unconscious, staggered in bleeding. He was the only survivor of the third lifeboat, he said. The Jovians had rammed the third lifeboat so heavily that all the other occupants of it had been killed.

Presently the low door opened again. In the doorway stood several little Jovians. One held up a finger, then beckoned.

The meaning of the gestures was clear. One Earthling was wanted to come out of the prison cabin and go with the little creatures.

"Go with them? Not likely," men growled. "If they want any of us they got to take us."

Captain Lovell took another view.

"Come along! Who will volunteer to go with these men? We must not miss a chance of possible friendship."

It seemed to Reg a pretty thin chance, but he said, "I'll go, Cap'n," and walked out of the door, trying to look calm.

The door slammed behind him. He was in a corridor where he had to stoop low. One little man beckoned from in front while another pushed from behind. Two others tugged at his sleeves.

Heart thumping painfully, more from suspense than fear, he arrived in a wide room with a higher ceiling. He was

glad to be able to stand upright again, but when he realized what the room was his heart sank again. It was a fair-sized laboratory or operating theater. Most of the apparatus was strange, but some he recognized at once as hypodermic syringes, anaesthetic plant and scalpels.

DIAGRAMS on the walls explained themselves. There were pictures of all the planets, a diagram of a lightly built Earth space ship contrasted with a much more solid Jovian vessel, and pictures of little men of Jupiter, with their enormous feet, compared with the giant men of Mars, the frogmen of Venus and men of Earth. There were pictures, too, of the organs of Earthlings such as brain, liver and kidneys contrasted with those customary on other planets. The writing that went with these pictures was beyond him.

The diagrams produced unpleasant sensations in the corresponding parts of Reg Whistler. How could the little men know so much about the insides of Earthlings unless they were in the habit of cutting Earthlings open? Perhaps he was, to them, just a specimen, a frog to be dissected.

One end of the room was hidden by long curtains. His imagination became busy guessing what it was that those curtains hid from him.

He was lifted onto a metal table. The little men seemed able to pick up his much larger body with scarcely any effort. The metal table was not quite flat, but sloped from the edges to the center, where there was a hole for running off blood. His blood would not make a nasty mess on the floor of the laboratory. The knowledge did not console Reg in the least.

He wondered whether to make a sudden jump from the table and attack them. Numbers were hopelessly against him. He could not see any pistols, it was true, but what would be the use if he killed four or five of the little men only to be overwhelmed by the others?

An arm of a big machine swung round. "Chloroform," Reg thought, but to his immense relief it was only a metal cap, fitted with many wires, that they adjusted over his head. Then they covered his eyes.

Quivering electric currents were running through his brain, coming from the cap. He seemed to be gropingly, vaguely, in contact with another mind. Could it be? Telepathy by machinery? Apparatus that could turn thoughts and feelings into electric impulses and back again into thoughts and feelings in another brain. Silent, wordless telephony!

There was no reason to suppose that men of another planet, possibly with a civilization far older than that of Earth, might not accomplish such a task, impossible though it seemed.

But the thought-tones that came from the machine were harsh, brutal, commanding, like the voices and faces of his captors.

"SNAP out of it," came the telepathic command. Actually no words were used, but Reg received a sharp impression of impatience with his fears and quivering nerves, and fitted his own words to the order.

Telepathic impressions began to flow rapidly into his brain. They were confused, bewildering. The language difficulty between them had been bridged by telepathy, but still there were wide differences between Earth and Jovian outlooks. Different habits of thought, different associations. The Jovian's method with these difficulties was impatient and contemptuous.

"Why can't you understand? I'm making it all as simple as I can. Why

don't you try to understand?"

Pictures, ideas of shapes, flowed into Reg's mind. But they were all pictures of things drawn from the lives of Jovians. The Jovian apparently expected him to recognize these shapes, but they might have been anything.

The Jovian tried to talk in colors, with no better luck, then in sounds and smells. None of it meant anything to Reg, although he did get across the idea that some of the smells were unpleasant. One smell which Reg associated with stinking eggs the Jovian indignantly associated with an elaborate form and gaudy colors.

Emotions came clearly through the machine. Stinking eggs to Reg was a beautiful scent to the Jovian.

"Call that beautiful," Reg thought of the Jovian's flower. "It's a stinking horror!"

Reg had not intended that thought to go through, especially as it carried a poor opinion of the Jovian scientist's taste and intelligence with it. But through it went.

"You are hopeless," snapped the Jovian. "Waste of time trying to talk to you. You have no more brains than a (reptile?) Only thing to do with you is to cut you open and shoot you out of a waste-chute into space."

That got across very clearly, more clearly than any of the previous remarks of the Jovian. The picture of Reg's hacked body flying out of a chute into space was a very vivid one. He also learned that his was a gigantically long and skinny body miraculously supported by two long matchsticks for legs and two tiny feet.

Perhaps the Jovian did not really intend to have Reg murdered, at least not at once. But Reg thought he did.

With one spring Reg cleared the table. Two Jovians who stood in his way were knocked aside by his hasty rush. He blundered into a small stand sending instruments flying. Ahead of him were the curtains that hid part of the laboratory from his view. As he ran through they tore down.

Around him were more tables, and on the tables, men. He recognized the bodies of several of the crew of the "Esstrellita." This was where the men in the third lifeboat had ended up. They had been cut open and hearts, kidneys, lungs, lobes of brains, etc., taken out and placed on smaller tables. Little Jovians moved among them with knives that were queerly shaped and with bottles and wheeled ray-machines.

WITH one terrific yell Reg tried to go through the door without opening it. He did not succeed, chiefly because it was only four foot high. Presently he got it open, and the Earthling, still with the television helmet, torn from its machine, on his head, went rushing on hands and knees down the low corridor.

Between his thighs he saw a Jovian come through the door behind him, but the little man jumped back quickly when Reg lashed out with his foot.

The passage turned a corner. Four Jovians were ahead. For a moment Reg was in despair, then they all ran with little screams. A long, lean giant had come rushing at them, with open mouth showing ferocious teeth and wild eyes. At the sight of them the giant had uttered a terrific roar.

His shout still echoing through the corridor, Reg wondered which of the many doors here to go through. One was nearly five foot high, and Reg naturally chose that one. If he had been calmer he would have noticed the painting and carving round the door and have realized that this was the entrance to the apartments of some important person.

The ceiling beyond was high, the floor of some soft material that his sore knees were glad of. And he was able to stand upright at last.

Somebody was coming. He heard voices and laughter. He went the opposite way. Somebody was coming that way too. He heard the "Plonk, plonk!" of huge Jovian feet and glasses tinkling on a tray.

He ducked under the nearest doorway.

It was a smallish room, well decorated but not over-furnished. Clothing hung on hooks or lay folded on the floor.

"Can this be a wardrobe?" he wondered. No, or there would not be so many towels, cakes of soap, brushes and combs, nail-files, mirrors, or the smell of stinking fish. (The last was a very expensive Jovian scent.)

A little yelp made him turn his head, expecting to see a Peke.

Then he knew what kind of room it was.

It was a Jovian bathroom. And there was a Jovian lady in the bath.

CHAPTER III

Clarabell

IF YOU were high-caste Jovian lady, and somebody suddenly burst into your bathroom, you would expect to see one of your maids, and you would get ready to ask, more or less sharply, what her hurry was. And when you realized that your rude visitor was not a maid but a man, a gigantically tall and impossibly thin man such as those pictures you had seen but never really believed in of the inhabitants of the little planet, Earth, you would scream in terror. Then it might occur to you that this spindle-legged monstrosity was likely to kill you with one blow for screaming and bringing pursuit upon him, and you would try to stop yourself. The result might be a yelp that would sound to the Earthling like the bark of a small dog. The Earthling would look down and see you for the first time.

Reg blushed hotly. The Jovian lady saw the blood rush over his face and neck, and wondered what was happening to him.

In spite of her fright, his obvious embarrassment made the Jovian lady laugh to herself.

"I—I—I— beg your pardon," stammered Reg.

By all the rules she should not have understood what he meant. But she did, perfectly. The expression on his face told her that. She wanted badly to laugh, but knew she must not. This was very serious.

Reg tried to explain. It was only a rush of strange sounds to the Jovian. The effort was unnecessary. She knew that an Earth ship had been run down and its queer inmates captured. She knew that they were to be examined by scientists in the ship's laboratory. It had not seemed to matter, because the inhabitants of Earth were to her queer animals rather than human beings. And now here was one of them with the telepathy helmet still on his head. For all his strange shape she couuld see that he was a nice-looking rather scared young man, not at all likely to have a habit of eating ladies discovered in their baths.

Her first fright over, she began to feel that he had been badly treated. She smiled reassuringly, to the immense relief of Reg. He smiled his thanks, and admiration. She was a decided good-looker, and, what counted for far more at the moment, a very sympathetic and friendly person.

Without any apparatus, they had es-

tablished interplanetary communication more successfully than the Jovian scientists with their elaborate machinery.

Suddenly she put her fingers to her lips as though pinching them together. He guessed she was warning him to silent. Jovian feet were "Plonk, plonk, plonking" along the corridor. Looking for me, thought Reg. He kept quite still. There was no hiding for a man of his size here, and only one other door beside the one he had come in by. He decided to trust his new-found friend and hope for the best.

The Jovian lady heard voices. In Jovian language they were saying, "Escaped Earthling. Seemed quite timid, then made a sudden dash out of the laboratory. He came this way. So sorry to disturb, but—"

SHE began to make frantic signals to Reg. She wanted him to bolt the bathroom door. A hundred to one they would not dare to come in, but one never knew. And she could not get out of the bath to do it while he was there.

"Slow-witted fool," she muttered, as he did it only just in time. Then she was glad he could not understand her.

A maid rattled the door.

A sharp conversation began through the bolted door. The maid, and then Jovian spacemen, told her of her supposed danger, and she was sharply answering that if they were too stupid to keep hold of any Earthlings they caught that was no reason why her bath should be disturbed. Would they go away, and quickly?

The "Plonk, plonk" went away. Then suddenly she began to make more signals, pointing to the other door. Another maid had nearly pushed her way into the bathroom before Reg pushed the door shut in her astonished face.

When that danger was over the lady in the bath began making more signals, this time much harder to understand. If he had understood what she was saying behind her smile he would not have felt flattered.

"You great, long, spindly fat-head! Have I got to stay in this bath for ever? The water is getting cold. Will you go into the next room and let me get out and dress? Or have you only got a turnip for a head, same as it looks like?"

In the end the message penetrated. Reg went into the next room, locked the door, and the Jovian lady was able to put her clothes on.

IN HER bath, the lady from Jupiter had been to Reg a delightful person with dancing, mischievous eyes and a roguish smile, although admittedly she was somewhat on the short and dumpy side. Dressed in her most expensive clothes with odd points and tassels all over them and well scented with penetrating stinks of eggs and fish that had long departed this life she looked something formidable and queer. Actually she had put on her very best clothes, the equivalent of several thousand dollars' worth, for his especial benefit. Not knowing this, he tried to think of her as she was with her beauty unadorned. And with her elephant-thick legs and enormous feet hidden.

Assuring herself that the doors were fastened, she jumped and knocked the wind out of him by landing on his lap. Shocked, he reminded himself that it might be a Jovian custom for ladies to sit on the laps of strange men.

When he got his breath back she pointed to herself and repeated some strange word. He took it she was telling him her name. "Clarabell" was the nearest he could get to it, and she seemed quite satisfied with that. She called him "Weck."

Then she fitted the telepathy helmet still on his head to one she produced out of a cupboard, and put the latter on. He saw that she wanted to telepath him.

Telepathing Clarabell, who gurgled with laughter when he failed to understand, was far more pleasant than telepathing the Jovian scientist who burst into rage at every difficulty. And what they had to say to one another was so simple, at first, that they could pretty well have go it across without any wires to help them.

She was very sorry he had been treated so roughly. The men who did it were no friends of hers. She would look after him and take him somewhere where he'd be safe.

Reg was gushingly grateful.

"What do you think of me?" she asked.

He thought her lovely, apart from her legs. He added the last bit before he realized it. He was to find that that was the chief difficulty about telepathy, one's secret thoughts slip out before one can stop them.

She was not offended. Instead, she burst into laughter.

"I think you lovely, too, apart from those ridiculous legs of yours," came her answering thought. She thought his legs screamingly funny.

For a while it looked almost as though this remarkably successful interplanetary intercourse would be wrecked on the question of legs. She quoted the Jovian dictum: "Beautiful feet should be one and a quarter times the width of the shoulders in length." And pointed out that Reg's legs would probably break if he tried to walk about on her native planet where gravity is so strong.

He hastened to assure her that he had thought her an altogether lovable person when he first saw her, in her bath, with her legs and feet hidden. Exactly the sort of person he had always wanted to settle down with in some quiet spot, away from everything.

TELEPATHIC love-making is swift. Thoughts convey so much more than words. Clarabell answered at once that nothing would please her better than to settle down for life with him in that spot.

"And leave Jupiter?" he asked in surprise. It seemed impossible.

A bell jangled, and she went into a cabinet to answer. Switching on television, she saw the Jovian Captain frowning. He had stony eyes and a harsh, sneering mouth, just the sort of man she hated. Usually he addressed her in a servile whine, but this time he was abrupt and bullying.

"What are your playing at, Clarabell?" he demanded.

"Me? Playing at?" she asked, in pained surprise.

"Quit fooling. You know what I mean. That escaped Earthling was definitely traced to your rooms. Where is he? It is no use saying you do not know. I called the men fools, but I knew they were telling the truth. All the ship has been searched, apart from your rooms. What is more, one of your maids caught a glimpse of him in your bathroom, just as the door was shut in her face."

"Who was it?"

"I won't tell you and give you a chance to punish her. Where is that Earthling?"

"I don't know," she snapped. "You have no right to speak to me like this. When I report to my father you'll be fired and jailed."

A slow grin spread over the Captain's face.

"So you think," he said. "Caste rules everything on Jupiter. You high-

caste people think you can do no wrong. We lower caste people work, work, work for you, drive your slaves, direct your ships, officer your armies. Our rewards are sneers and insults. You think you can do anything on my ship because nobody here is of high enough caste to complain about you. But you have slipped up this time, Miss Clarabell. You have broken the rules of your own caste, and I have absolute proof of it. I've got you where I want you. You have befriended an Earthling, and Earthlings are reckoned the lowest caste of all, lower than the most degraded slave in the most backward state of Jupiter."

Rage and fright chased one another across Clarabell's face. The low dog! Always, till now, so fawning and subservient. How cunningly he must have waited and watched! For his threat was a terrible one. Caste rules on Jupiter were rigid. Befriending lower orders was "not done." The outraged dignity of her relatives would be soothed only by her death. Even her own parents would howl for her execution.

"Nonsense!" she snapped. "You can't apply the rules of caste to the people of another world."

"Oh, yes we can. And you'll find it out." He rang off.

REG could see from her compressed lips and pale face that she was upset. She came out of the booth and rang a bell. A stoutish Jovian woman answered.

"Why you, Florzel?" Clarabell asked in surprise.

"Nobody else would come, Miss Clarabell."

"Why not?"

"Word has got about that you have befriended a man from Earth. All the ship's passengers are terrified of the loose giant Earthling. The maids all said they wouldn't serve you again, and I said it was not true there was an Earthling here."

Her eyes rested uncertainly on Reg.

"Well, you can see now," declared Clarabell, putting on all her dignity, "there is an Earthling here. Does he look dangerous? Look at those long slender legs. One good kick from you or me and his shinbone would snap like a carrot."

"Yes," Florzel agreed, looking thoughtfully at Reg, who was trying to guess what they were saying, "but he is very big, and his arms are enormously strong."

"He's a nice, simple, harmless boy," Clarabell declared. "No wickedness in him at all. Just like a child. I've been connected to him on the telepathy machine. Absolutely innocent. No power of concealing his thoughts at all. Everything in his mind can be read like a printed page. Not many men like that on Jupiter. And look at the way those pigs have been treating him."

"Yes, a bit tough, really."

"I'll say." Clarabell tossed her head. "All right. Desert me the same as the others have. Join the mob howling for me to be roasted. Tell them the Earthling *is* here."

"I reckon I'll stay with you, Miss Clarabell. They wouldn't harm a poor cook who only wanted to serve her mistress."

"I wouldn't rely on that."

"I'll stand by you, anyway. The Earthling is a good-looking boy, as you say, and seems quite harmless as long as he's treated well."

CHAPTER IV

The Hold-up

"WHAT'S all the confab been about?" Reg asked, as soon as

he and Clarabell had the telepathy helmets on again. "I hope you are not in trouble over me."

"That is exactly what has happened," she said, and told him all.

"That's bad," he said. "I won't stay here and make trouble for you. I'll give myself up."

"Doing that wouldn't help me now. Not while the Captain is against me and priming his men with lies to tell about me."

Reg whistled.

"That is bad. What can we do?"

"I have a plan. Together we will slip out of this cabin during a sleeping period, steal one of the ship's lifeboats and land on Ganymede, where I can find friends."

"Ganymede? But what of my mates? They would be left behind here to face all manner of rough treatment on Jupiter."

"I don't see what we can do for them."

"I do, if I had guns."

"What would you do?"

"I would go to the Captain's cabin and force him, at the point of a revolver, to release my mates and give them guns. Then we'd make him land on Ganymede and radio Earth to have them send a ship to take us off."

"And I'll come to Earth with you."

For a moment he tried to imagine her walking along Broadway, with her short figure and enormous feet. If she wanted to cross the road she'd probably jump from sidewalk to sidewalk, over the traffic. People would certainly stare.

"Oh, that was a funny mental picture you drew of me then," she gurgled. "What did it mean?"

"*It doesn't matter now. First thing* we got to do is to get guns."

"Florzel will get them for us. She knows every inch of the ship."

Clarabell told Florzel what was wanted. The cook looked doubtful, but went out to try. Reg waited, impatiently champing the bit. If the Jovians decided to break in here before Florzel came back he'd have only his fists to fight with. He was relieved when a gentle "tap-tap" sounded on the door and Florzel was let in.

"I got them," she smiled, proudly, "I had to bluff the guard, but I got past him and found these on the table in the soldiers' cabin."

Clarabell looked at the three metal objects she produced.

"Then your trouble has been for nothing. These are heatrays, useless except at close quarters. At twenty feet all their energy is wasted on the air. Try again."

FLORZEL went out again. Reg looked at the heatrays, which to him were amazing bits of mechanism. She showed him how to work them.

"Useless for fighting, except at very close quarters," she told him.

"Fighting aboard a space ship would be mostly at close quarters," he said. "These would be mighty fine tools for burning open a lock with, or jobs like that."

"Or for cooking food in an emergency," she added.

Then Florzel came back. She wouldn't be able to go again she said. This time the guard had been suspicious. He had watched her, seen her take the guns she wanted, and ran after her shouting at her to give them back. Only at the door of the high-caste passengers' quarters had he stopped.

"H'm! Now I suppose we shall have trouble, unless we act first," was Clarabell's remark. "My boots! You've brought deadly enough weapons this time."

"No time to make a selection," Florzel explained.

Hastily, Clarabell explained the working of the strange pistols to Reg.

"They fire at great velocity arrows as long as one of your fingers and as fine as needles made of a metal a thousand times as heavy as lead. The bullets will go through a steel plate six inches thick. The slightest scratch with one of those bullets is fatal, because the metal sets up radio-active reactions in human flesh, and those reactions spread all over the body in a few minutes, paralyzing heart and brain."

Reg tested the heavy weapons.

"I'll never understand how to sight them," he said, looking at the strange markings. "I suppose it wouldn't help me if I could. The sights would be adjusted to Jovian gravity. To adjust them to Earth gravity I'd have to multiply each distance shown by two and a half. On this ship I'd have to guess the acceleration being used, then adjust the distances again. By the time I had worked all that out I wouldn't need to bother, because I'd be shot myself. Wish Forzel had brought rayguns. A ray, striking always in a dead straight line, saves so much trouble. And, being continuous, is much more deadly than the most rapid machine-gun. Fortunately, fighting inside a space-ship was likely to be all close-work. All the same, solid bullets against rays are like bows and arrows against rifles. Hope we don't have to fight. Lead on, Clarabell."

Pistol with radio-active bullets in each hand, box of spare ammunition and heatray in pockets, Reg ducked under the doorway. Clarabell carried radio-active pistol and heatray, Florzel a heatray in her ample pockets. Her hands were empty.

"We shan't have to fight," she declared, confidently. "Nobody on this ship would dare shoot at you, Miss Clarabell."

"I hope not, but I'm not taking chances."

THE two women led Reg through a bewildering maze of low passages.

"We have nothing to fear from the ordinary crew of this ship," Clarabell said. "They are extremely low caste, crushed and hopeless. Their race was conquered centuries ago. I am of the race of the conquerors of the conquerors of the conquerors of the conquerors."

"But we of the lowest caste dream always of revolt," Florzel said. "I am one. Most of them would gladly ray the officers."

Clarabell was right. They passed Jovian spacemen. These stared at Reg, but made no attempt to stop them. They came to a round chimney with rungs in the walls and began to climb, Reg having much trouble with two heavy pistols between his teeth. This chimney was the slaves' way to the "top storey" or nose of the ship, where the Captain's and pilot's quarters were situated.

Florzel felt a door.

"Locked," she said.

Reg took a heat-ray.

"Tickle the innards of the lock with this."

But although the lock became red-hot at once it did not give way. Reg tried a radio-active pistol.

"Wump!"

The heavy recoil nearly knocked Reg off his perch. If Clarabell had not seized him he would have fallen down the long shaft to the end of the ship. But the lock was completely smashed.

Beyond the door Reg saw three uniformed Jovians looking round startled at the sound of the report. The sight of the grim-faced Earthling and two radio-active guns pointed at them startled them still more.

Reg crawled on his knees through the broken doorway and along the passage.

One turned to run, and Reg fired past him.

A whistling noise began. Reg's bullet had gone through the side of the ship. Air was leaking out.

THE three Jovians were puzzled to see Clarabell with him.

"Where is the Captain?" Clarabell demanded.

One of them pointed at a door.

"Tell them to open the door," directed Reg.

They did.

"Inside," he ordered, through Clarabell.

An angry voice was heard. The Jovian Captain was reproving his men for entering his room without permission. His tirade stopped when Reg came crawling awkwardly in, pistol in each hand. If you ever try crawling into a room on your knees with a heavy pistol in each hand, keeping five men ahead of you covered, you will know how awkward he found it.

The Jovian Captain was not alone. With him was the Jovian whom Reg recognized as the scientist who had tried to telepath him in the laboratory.

"This is another crime you will have to answer for, Miss Clarabell," the Captain growled.

Reg told Clarabell to take off the telepathy helmet and make the Captain put it on. She tried to warn him against this, but he insisted.

"I must talk to him direct," he said.

The Captain hesitated, but the Jovian scientist seized the telepathy helmet with the eagerness of one who knows his enemy is making a mistake.

"My dear Earthling!" came his thoughts at once, "why are you making all this fuss? What has alarmed you? If anything is wrong you have only to tell me and I will have it put right."

Reg was surprised. He had expected threats, something in keeping with the fury of the Captain. This was a much more subtle attack. The Captain was looking cunningly triumphant now, Clarabell worried. Reg had seemed so sure of himself in connecting his brain to that of the Jovian telepathy expert. Was it possible that he thought his brain strong enough to overcome that of the master?

The Jovian knew it was not. He knew that a novice had unsuspectingly placed himself in the hands of an expert.

"Anything wrong?" Reg repeated. "You people crash our ship and then crash our lifeboats, killing a number of our men, and then you ask, 'Is anything wrong?' "

"My dear Earthling," came the stream of suggestion into his mind. "You are making a grievous mistake. We mean you no harm. We are your friends."

"Fine friends, to crash our ships and murder us."

HE WAS struggling to keep a grip on reality. The stream of suggestion was like a flood, threatening to swamp him.

"Oh no, my dear Earthling. Quite unintentionally. Your planet and ours follow different 'rules of space.' Haven't you, on your world, countries that keep to different 'rules of the road'?"

"Yes. Traffic in America keeps to the righthand side of the road, whereas that in Britain keeps to the left."

"Then if two drivers, one from each of the countries you mention, met, and each kept to his own rule they would probably collide. That was what happened to our ships. Your rules required you to turn one way, ours required us

to turn the other. And so we crashed."

Reg felt sure there was some catch in it.

"But why crash our lifeboats?"

"To rescue the survivors of the accident. Your little boats with their small stores of fuel had very little chance of being picked up."

"Why crash them?"

"There was no other way of stopping them."

"You crashed the third one so heavily you killed the men you say you were rescuing."

"Oh, no, my dear Earthling! Not at all. You misunderstood altogether. Your Earth bodies are so fragile, being accustomed to such light gravity, that you are injured by what to us are but light shocks. We were amazed at the results of so light a jolt. In any case your companions are not dead. Their bodies have been preserved alive by our technic of instantaneous freezing by means of force fields that drain away all heat. In this condition we can operate on any part of them, sealing broken nerves, blood-vessels, bones and fibers. When we bring them back to normal temperature equally suddenly they will be in perfect health once more."

The Jovian had an answer for everything.

Reg had a suspicion that he was being fooled. Something not quite right lay at the back of all this flow of assurance, all these promises of helpfulness and friendliness. But the stream of suggestion kept on and on, swamping his doubts, turning him into a trusting slave of Jupiter.

TO CLARABELL'S despair he meekly handed over his radio-active guns. Jovians took hold of Clarabell's wrists and took her gun away.

"You see," the scientist said to the Captain, after taking off his telepathy helmet, "these simple Earthlings can be overcome without your crude methods. By these means we capture, not useless corpses, but willing servants who will add the Earth to the domain of our mighty Emperor. The resources of that planet will help him to victory over his enemies."

"I wish you success," the Captain answered stiffly. "And as for you," he added to the despairing Clarabell, "the authorities will know how to deal with you when we get to Jupiter. For the time being, return to your rooms. I will keep you guarded until we get back."

Reg by now was convinced that none of the Jovians meant any harm. Clarabell was wrong in thinking that her life would be forfeit for helping him. He wanted her to put on the telepathy helmet so that he could explain to her, but the scientist took the helmets away, then, with a reassuring smile, led him out of the door and through a maze of passages and stairs to a room where two Jovian couches were placed side by side to make a bed for him. Reg went happily off to sleep.

The Jovian scientist gazed at him with a smile of satisfaction.

"You gave me a lot of trouble, Earth simpleton," he thought. "Breaking loose and causing panic among the passengers. But you'll give no more trouble now." He looked around.

"Perhaps this cabin is not as strong as it should be, for a prison cell. I'll put a guard on the door in case."

CHAPTER V

The Women's Venture

THE two Jovian women were hustled back to their rooms.

"We failed," Clarabell said bitterly.

"If you could get to him, Miss Clarabell, and talk to him by telepathy you could soon convince him that what that rat told him was all lies."

"Yes, but how can I reach him, Florzel?"

"I have a plan, if you will try it."

Faint hope came to Clarabell.

"I'll try anything rather than face what will happen to me on Jupiter.

"We must put on space suits and cut our way out of the ship. Then we must work our way round the ship on the outside."

Clarabell gasped.

"Could it be done? The ship is accelerating rapidly. We would have to cling to the slippery sides of the vessel. If one of us fell off we would never get back again."

"We can try. Our heatrays have been left to us. We can burn our way out."

"The air would escape and give warning."

"Not if we plugged up the cracks round the doors and the keyholes first."

Clarabell thought it over.

"We *will* try."

They shut off the teleview, then began to make the room airtight. Quick hardening paste, always kept ready to stop up dangerous air-leaks in space, was pressed into the ventilator, cracks round the doors and keyholes. Then they put on space-suits and began to burn two lines in the outer wall in the form of a cross. Soon the metal was so eaten into that it was reduced to paper thinness. A heavy blow from a table leg well wrapped in cloth to muffle the sound, and a square hole opened. The rush of air out of the room made a strong wind that hurled many small objects out into space.

Presently the wind died away. The room was now a complete vacuum. A little more work enlarged the hole, then Florzel, attached to Clarabell by a long rope, climbed out.

She disappeared. Clarabell followed.

Her heart sank when she looked over the smooth metal sides of the vessel. There was little to hold on to except the round windows, which were a long way apart. If she had had the long arms and legs of an Earthling she might have clambered all over the ship, but to the short body of a Jovian it looked impossible.

Florzel plugged in the telephone built into her suit. Without telephones talking in the void was impossible, unless the helmets of the suits were in actual contact.

"Can we make it, Florzel?"

"Yes if you don't mind sweating. These suits are made for repair jobs in space while the ship is traveling."

"Not at this pace."

"Watch me."

FLORZEL leaned forward and burned a shallow hole in the side of the ship, then another about three feet above. Then she stepped carefully out, put the spike at the side of one boot into one hole and held by the spike of one hand to the other. Then she reached out and burned more holes to put her spikes in until she reached the next window. Clarabell then came across the holes and joined her.

It was like a new and difficult kind of mountaineering, but one of the two was always standing on a window with the cord firmly hitched round a stout hook in case of accidents. One slip otherwise would have meant falling off the ship and being left behind in space to become a new and tiny satellite of Jupiter's large family.

Clarabell was nervous of being seen, but space-travelers do not look out of the windows much. There is no scenery.

They certainly sweated with the toilsome climb. At first the sun shone blistering hot on their backs and the metal of the ship was hot, but as they worked round to the shaded side of the vessel a bitter chill began to seep into their suits. Florzel showed Clarabell how to warm herself up by a momentary application of the heatray at reduced strength to the metal of her suit.

Suddenly Clarabell's heart froze, and not from the cold of space. In one of the observation hatches that bulged from the side of the ship like glass bubbles a man of her own race was staring at her in goggle-eyed amazement. While she watched he dodged back, obviously to teleview the news that two suicidal fools were climbing over the ship on the outside to his commanding officer.

Florzel heard her cry on the telephone.

"What is the matter?"

"Florzel, we've been seen. We forgot the look-out hatches."

"My dear child!" (Florzel was getting less servile now.) "Those hatches are manned only for special reasons."

"I tell you there was a man in the one ahead of us. He is reporting us now."

Florzel made a noise of disbelief, then, "Why, of course. What a fool I was not to think of it! *They can hear us.* We think we are making no noise because we can't hear ourselves; but from inside the ship our every movement sounds like the tapping of a tiny hammer against the ship's hull."

In the observation bubble another face showed, that of the Jovian Captain. Both women knew that no mercy was to be expected from him. His eyes lit up with delight at seeing the two women who had tried to hold him up at pistol-point at his mercy. He ducked away again.

"Gone to stop the ship and send men in space-suits after us," Clarabell thought. She pressed her helmet against the ship's side to hear the alarm bell that would warn the passengers against a reduction of acceleration. Without warning, they would be liable to be thrown against the ceilings or walls of their cabins.

SHE heard a warning, faintly, but could hardly believe what she heard. It was a warning against increased acceleration. Throughout the ship passengers stretched themselves on soft couches and crew on floors to prepare for a sudden increase in the weight of their bodies.

"Do you hear that bell, Florzel?"

"Yes. The ship is about to increase speed."

"Do you know what that means?"

"Yes. We are both holding on with great difficulty. If our weight increased suddenly we would both fall off and be lost in space." She considered. "Why yes, I have it!"

"Have you a plan to save us, Florzel?" Clarabell asked, hardly daring to hope.

"Oh no, not that," Florzel answered, coolly. "I wasn't thinking of that. I was wondering why the Captain was trying to murder us both like this. He is after your jewels. If he can report us as 'Lost in space without trace' he will make an inventory of your luggage and possessions. From that inventory your jewels will be missing. He can say you must have taken them with you. That would make him rich for life. Very cunning."

"Oh dear," gasped Clarabell, "why worry about a few silly jewels now? If we don't do something quick we'll both fall."

"No hurry," Florzel said, calmly. "I know what the Captain is after because

I was after the same things myself. No reason why I shouldn't tell you now, but I'm a burglar."

"What?"

"A female burglar. I entered your service as a cook so as to get a chance at your jewels. That is why I know how to climb about the outside of a space-ship so well."

"Don't worry me about that now. Think about what we are going to do."

"My dear child, I tell you there is no hurry. The Captain must give thirty minutes warning before he increases or decreases acceleration. And even then the change must be gradual, not sudden. The increase is just beginning now."

Slowly the strain on their bodies increased until it seemed as though a giant had taken hold of each of them and was trying to tear them away from the ship.

"Now," said Florzel suddenly.

HER heatray shivered the glass of the window they were leaning against. Most of the fragments were blown explosively outwards by the sudden rush of air. Clarabell was nearly blown out with them, but Florzel, by a great effort, threw herself through the broken window and pulled Clarabell in with her.

"That Captain has a long way to go before he can match one of the smartest cat burglars on Jupiter for cleverness," Florzel said, very pleased with herself. "I waited until I could rely on everybody in this part of the ship being on acceleration couches. And the noise of the rockets drowned the noise of our breaking in. Now we can go all over the ship without seeing anybody. They will all be on couches."

Crawling on hands and knees because of the heavy acceleration pressure, they opened the cabin door, crawled out into the passage with difficulty against the rush of air, and closed the door again by a great effort against the escaping atmosphere.

They began to crawl along the passages.

"It will be in one of these cabins that your Earthling will be imprisoned," Florzel said, reaching a long passage with many turns.

She was not prepared to find a guard posted over Reg's door.

They crawled round a corner, and suddenly came upon a Jovian lying on his face on a mattress on the floor. A radio-active pistol was in his hand, pointing at them.

"I thought I heard you coming," he said. "You are the two men who were seen on the outside of the ship trying to wreck the vessel and kill us all. My orders are to shoot you both if I see you."

CHAPTER VI

Smoke—Screen

THE visors of the helmets of the space-suits were down, allowing the two women to breathe and talk normally. In three seconds Clarabell seemed to live a year, waiting for the radio-active bullets to tear into her body and Florzel's. It seemed to her that nothing could stop them.

"Don't be silly," Florzel snapped to the guard. "We are not men. We are women. Women passengers. Can't you see we are women?"

"Then why are you in space-suits?" the guard demanded, suspiciously.

"We come to warn you. A meteorite has struck the ship! Air is escaping! Get into a space-suit quickly."

Clarabell gasped at the ingenious lie. She saw the guard's face whiten. It might be true. If it was there was danger.

"Was that the crash I heard?" he asked.

"Of course it was."

"I hear air escaping somewhere," he muttered, doubt becoming fear. He got off the couch and began crawling rapidly away to get a suit on.

"Got rid of him," said Florzel in triumph.

"You are clever."

"No time for compliments now," Florzel returned.

They opened the door, saw Reg lying on the floor inside. They crawled in, taking the key and locking the door on the inside. At once Clarabell clamped the telepathy helmet on Reg's head and the other on her own.

"So glad to see you," Reg said. "But why come now? This acceleration pressure is an awful strain on an Earth body."

The acceleration was beginning to die away to normal now.

"Reg!" Clarabell called, by telepathy, "take no notice of what that pig told you in the Captain's cabin. It was all lies, lies, lies! He and his clique plan to make helpless slaves of you and all Earthlings."

"My darling, you are wrong," Reg answered. "They are our friends. You misunderstand them."

"It's all lies, lies, lies," she called, desperately.

She hadn't much time. Feet were coming along the passage. Fists were knocking on the door. The guard had discovered that Florzel's tale of a meteorite was not true. He had come back, with others.

Clarabell's methods were simple and direct. She was in a hurry. Her simple assertions made no headway against the subtle, elaborate falsehoods so cunningly implanted in Reg's brain by the Jovian telepathy expert.

"Open this door," called voices outside, "or we burn it down."

"You are mistaken," Reg repeated, obstinately to Clarabell.

Clarabell realized she must try a different approach.

She put both rubber-clad arms round him and pressed her face against his, lips against lips. She felt him thrill. He was responding.

"My darling," she called, telepathically, "I love you! Would I be likely to deceive you about a matter like this when I love you? Those men outside will kill us when they get in. You *must* believe me."

She felt doubt enter his mind. Perhaps the scientist *had* been lying. Her word was more to him than that of any male Jovian. After all, why should he trust a Jovian scientist? The story he had been told had not really been convincing.

BY NOW the door was beginning to give way, despite the furniture Florzel pushed against it. They could see the furious faces of men outside. One tried to aim a radio-active pistol, but jumped back with a howl when he got a nasty burn from Florzel's heatray.

"Stand back," snapped a voice. "They are asking for it. Let them have it."

A radio-active pistol began to thump outside, s e n d i n g tiny but extremely heavy needle-bullets through the door, piled furniture, room and outside wall of the ship.

"Gosh, they are trying to kill all three of us," Reg gasped. "What that Jovian said must have been lies."

"Is there any way out of this, Florzel?" Clarabell asked, as bullets sang round them.

"Yes. Into space. But Reg has no suit on and would die of lack of air as soon as we broke open the window. The only other way is through the wall.

These inside partitions of space-ships are always made thin to reduce weight. Perhaps . . ."

She kicked the wall with her huge and tremendously strong foot. Her boot went through. In a few seconds the hole was large enough to let all three of them through.

"Make haste," Florzel said, softly.

They found that the next room communicated with one beyond. Here a Jovian in uniform gaped at them amazedly, then jumped for an alarm bell. Reg, with the advantage of longer arms and legs, was able to reach him first with a blow on the jaw that knocked him cold.

After that Reg had only a vague idea where they went. They broke through walls, slipped through doors and along passages. Florzel burned small holes in windows and walls as they went, "To keep them busy plugging air-leaks," she said. A Jovian, coming round a corner, tried to aim a radio-active pistol at them, but Reg, shooting out his enormously longer arm, was able to knock him over and take the pistol from him.

Florzel seemed to have made up her mind where to go. They reached the service chimney that ran the length of the ship, and began to climb down. Terrified passengers could be heard screaming in their cabins. The noise of shooting frightened them, for nearly every shot made a puncture hole in the ship's hull and allowed precious air to escape into space.

Florzel pointed to a door. They went through.

"Give me the pistol."

WITH several shots she opened the service shaft to outer space, letting its air escape. Jovians who had tried to follow without suits had to scramble hastily back.

All through the rush and excitement the important telepathy helmets had been carefully kept. Without those, Reg would have been unable to convey the simplest thought to either of his women friends or they to him.

Now they were among a number of pale-faced, stunted Jovians with well-worn, dirty clothes. Obviously the working crew of the ship. Clarabell shrank from them with a horror she could not altogether hide. Florzel spoke to them, rapidly, and they listened with doubtful shakes of their heads.

"What are they saying, Clarabell?" Reg asked.

"She is asking them to hide us from their enemies, the bosses. They are afraid to, saying they would be killed for it. They say also that it is impossible to hide from the prying television ray."

"Why not ask them to show us where the lifeboats are?"

Florzel did.

"They say the ship's lifeboats are in their usual places, near the passengers' and officers' quarters. Jovian ships do not carry lifeboats for the use of the crew. Stringent precautions are taken against any of the slaves capturing a lifeboat and trying to desert."

"What about the lifeboats of my ship? Two of those were undamaged. Are they on board?"

"They are in the hold."

"Lead me to the hold, then."

Friendly slaves directed them to a massive door, which their heatrays and heavy bullets soon burst open. Beyond they saw a vast compartment full of stores, luggage and valuable merchandise. Among all the unfamiliar and familiar stuff Reg quickly spotted the equipment stolen from the Earth ship, and among it the two cigar-shaped lifeboats, securely fastened.

One seemed in almost perfect order.

"Cut her loose while I see that she

is all right inside," Reg told Clarabell. She got busy with heatrays.

"All ready to start," Reg declared. "Get in."

Clarabell got in.

"Where's Florzel?"

"Barricading the door, I think."

Heavy equipment had been pushed against the door. It was as well, because already running feet and shouting voices could be heard outside. But nothing could be seen of Florzel.

"Call her."

Clarabell called softly, but it was almost a minute before Florzel ran up and got into the lifeboat.

"Which is the outside wall of this compartment?"

Nobody knew.

"Have to chance it," he decided. "Be ready for jerks." Jets of fire roared from the exhausts as the little ship plunged forward. "Make sure of your straps! Hold tight."

The rocket lifeboat hit the wall. As Reg had judged, its pointed, bullet-hard nose drove right through.

THEY were in another storage hold. Reg did not stop to see what this compartment held, but directed the nose straight at the round window. Another crash threw them all forward in their seats, and then they had broken out into space.

Reg turned their nose directly at the sun, and gave her all the acceleration possible. His body drove back painfully hard at the powerful drive. A small object in space between the observer and the sun is extremely difficult to see, but Reg had no doubt they would soon be spotted.

Mirrors provided a view out to the back of the little vessel. When the big ship became visible beyond his own expanding cloud of exhaust gases, he saw that it was reducing acceleration and turning towards them.

"They are coming after us," Florzel said.

"Let them try. I'm certain I can manoeuver this little boat faster than they can that big ship, unless he's prepared to throw his high-caste passengers all round their cabins."

The big ship rushed at them, but at the last moment Reg let off a side rocket and made his boat swerve violently. The big ship went soundlessly past, then turned and came at them again. Reg, turning first one way and then another, traced immense fiery arcs through space, avoiding the huge leviathan as easily as a mouse avoiding the rushes of an elephant. Not daring to throw his influential passengers about too violently, the Jovian Captain could not turn his huge vessel nearly so quickly as the little vessel. Reg knew, too, that the look-out telescopes of the big ship must be continually losing sight of him when he shut off his power and let his boat run on her own momentum.

Suddenly a rocket flared from the bow of the big ship, a rocket whose focus left the vessel altogether. Another followed.

"They are sending small boats after us," Florzel exclaimed.

"No matter," Reg answered. "I've another trick up my sleeve."

He operated nose-rockets so that the boat turned a complete circle. Florzel, looking out, saw why, and gasped. He had reduced the oxygen intake into the racket tubes, so that half-burned fuel poured out as dense black smoke. The smoke formed a slowly widening ring around the boat.

Reg was hiding his boat in a smoke-screen.

He swerved, making fresh rings. The black rings kept expanding slowly, their fine particles still obeying the im-

pulses first imparted to them, becoming extremely tenuous, but yet shutting off all visibility at a range of several hundred yards. In that vast cloud he several times sighted Jovian boats, but they were going in other directions and he was away in the blackness before they could turn and give chase.

In the center of the great black cloud an intense darkness reigned.

"Shouldn't think he'll keep this up long. He's liable to lose his own lifeboats by collisions," Reg thought. "I'll stay in hiding for an hour or so and then take a look round."

SUDDENLY a great shape drove past them. The Jovian ship was plunging at full speed through the black cloud, striving to dissipate it by its own driving bulk and still more by the pressure of its own incandescent exhaust gases.

Slowly the cloud widened. At long last it was so thin that stars could be seen almost normally through it in every direction. Jovian telescopes, gravity detectors and searchlights probed the sky, but not a trace of the Earth boat was to be seen.

"There is no object of any size within a thousand miles of this ship," pronounced the Jovian observers, finally, "apart of course from our own lifeboats."

"They have got away then?" the Captain demanded.

"Oh no. It was impossible for them to leave their own cloud of smoke without being at once detected by our lifeboats. Our big ship must have collided with their boat somewhere in that cloud without our noticing the impact. Yet so violent was it that no particle of their boat with mass great enough for our instruments to detect was left. Of the boat and its three foolish occupants only scattered fragments remain."

"Good," said the Captain, rubbing his hands. "Now I can enter my log. 'Miss Clarabell, kidnaped in space by a crazy Earthling, and with her servant and the Earthling, lost in space without trace.' That clears me of blame. As soon as the storerooms are repaired I must make an inventory of her possessions that remain."

Already he was guessing at the value of the jewelry known to be in her possession. He would collect them right away, without waiting for repairs to the holds. A life of wealth and ease would be his.

CHAPTER VII

The Landing

A CIRCLE of twelve mighty rocket-tubes drove the great Jovian luxury space-cruiser. The large number of tubes reduced the vibration, turning a series of impulses into a steady, even pressure. The tubes were never entirely still in space, lest weightlessness inconvenience the passengers. Such luxuries as taking a bath, for instance, would become awkward and even dangerous if one's body and the water suddenly became weightless. One might find oneself floating in mid-air, drowning in a weightless sphere of water. Or stamp one's foot and shoot up in the air to dash one's head against the ceiling. Or be drinking a cup of tea and replace the cup on the table, only to see the tea remain behind in the air.

The fact that annoying and even dangerous things like this never happened on their ships was the boast of Luxury Space-Liners Company of Jupiter. And the reason for the twelve rocket tubes. Even if one of the twelve tubes broke down all that was necessary was to shut down its opposite num-

so that the unbalanced drive would not send the ship into a series of circles, and carry on on the remaining ten while repairs were carried out.

Central between the twelve rocket-tubes were the ship's four great telescopic shock-absorbers, something like the twin buffers from the front and rear of a railroad engine but capable of being elongated to more than the length of the ship.

It was these that the Earth ship had struck.

THE little space boat containing Reg Whistler and the two Jovian women rested in the rear of the great ship like a small boy riding on the luggage grid of an automobile. Reg, chasing the big vessel in the smoke cloud, had hidden from the big ship in its own exhaust gases. He had found it possible to come very close. An auto in a street cannot come too close to the one ahead in case it puts on its brakes suddenly. But space-ships have no brakes. Reg could safely keep his little boat in actual contact with the leviathan.

It was a perfect hide-out. The incandescent gases of the twelve rocket-tubes made a cloud of fire round them. Their mass merged into that of the larger vessel so that gravity-detecting instruments could not detect them. And when Reg had put on a space suit and welded the nose of his little craft to the stern of the big one with a heat-ray he was able to shut down his rocket-drive and relax. They were in tow, like little boys sitting on the luggage-grid of an auto.

Hold on he would have to. Jupiter was very close now. Her enormous mass reached out and gripped them. The little lifeboat did not carry enough fuel to tear herself free from that terrific grip. They would be obliged to land on Jupiter.

SOON they were within the limits of Jupiter's outer stratosphere. Friction made their hull uncomfortably hot. Wind screamed past like a thousand tormented demons. Below raged Jupiter's magnificent storm-tossed cloud-belts, with the great Red Spot glowing terrific through them.

No other human being had ever come so near that Spot, or been so near to solving that great astronomical mystery. Forgetting their danger for a while, he asked Clarabell about it.

She said, "It is a lake of white-hot, molten rock. It gives heat and light to the most fertile area of Jupiter."

He tried to imagine it.

"Then there is no winter and no darkness, near the Spot?"

"No. Everlasting summer and everlasting daylight," he was told.

Reg decided that Jupiter had its advantages, even if romantic walks under the moon were not in the program.

"You'll see the landing field soon," Clarabell said.

"But we must be hundreds of miles above the surface," Reg said in surprise. "And still going fast, too."

"It will come up to meet us," she explained.

"What?"

A landing field that rose in the air to meet an incoming ship was to Reg as absurd as though an airdrome came up to meet an airplane. Or as though New York swam out into the Atlantic to receive a liner. But rise that airdrome did.

It was miles in extent, supported apparently by gas or by some system of force rays. Huge shock-absorbing buffers reached out and struck those of the space-vessel with a tremendous clang. The space-liner now fitted snugly into its berth, and the landing-field sank slowly to the ground.

Reg, of course, had snapped off his

little boat and nose-dived into the great cloud-belt before the liner struck.

It was blind flying now, through the vast clouds where titanic wind-storms tore at them. Past them raced great birds, the curious balloon-birds of Jupiter, birds that have no legs but whose bodies are nearly all natural balloons of helium gas. There were countless varieties of them, Clarabell said, some being near human in form and intelligence, and they never came down to the ground except when their balloons were punctured by accident, in fighting or in death.

Reg was much worried at the problem of landing his little rocket-boat. The lifeboat was not designed for landing on planets. It was designed only for traveling in space, sending out radio calls for help and being picked up. Here on Jupiter were no landing fields that he dared to use. And all the difficulties of landing on Earth were multiplied by the greater gravity.

The clouds all round him were lit up by the bright red glow from the great Spot, but presently he ran into complete darkness. He was on the night side of Jupiter and away from all the lighted areas round pools of melted rock.

IT WAS absolutely dark. Through the clouds above not even a star could be seen. The lifeboat had no means of artificial lighting. It had been assumed that it would never need artificial light. In space the sun would always be shining on it from one side or another. Now, through a blackness more absolute than Reg had ever seen in his life, the little rocket-ship plunged at many hundreds of miles an hour, gradually losing speed and height.

"Are we liable to crash into some tall mountain?" he asked. "Do any of your Jovian mountains reach up into your clouds?"

"Not in the known, lighted areas," Clarabell said. "But quite half of Jupiter's surface has never yet been explored."

"You could use a few Columbuses and Livingstones and Cooks, then," he joked. What was in his mind was that at any moment he might run, crash, into some Jovian Everest. He had never seen such darkness. Even if there were no mountains he still might crash. He might be practically at ground level now. His instruments were useless here, and in any case he couldn't see the dials. The only thing to do was to get above the clouds. He turned her nose upwards and gave her the guns. Their lives depended on their remaining fuel, but he would have to use it.

After a long fight with gravity, the lifeboat rose above the clouds. Stars became visible once more. In the distance he could see the edge of the lighted area round the Spot.

Florzel took the telepathy helmet from Clarabell.

"Let me direct you," she said. "I know where to find friends. Our own people would turn on us now, but I know of a secret community hidden in a great forest many thousand miles south of the Spot. I will guide you there."

"I am afraid it's no use, Florzel," Reg said sadly, as he directed the boat the way she pointed out.

"Why not?"

"Because we are going to crash. My rockets have not a quarter of the strength needed to land safely against this awful gravity. And this boat has no landing-wheels, no floats, not even shock-absorbers. If I try to land we shall all be smashed up. And the fuel-supply is running out."

He had been afraid to tell Clarabell, for fear she would be nervous, but he did not mind telling Florzel. She seemed to him to be very stolid and calm, no

matter what happened. Things were desperate.

"Then I'll show you where to let her fall in the water," Florzel suggested, "if fall we must."

"I dare not. We pilots are taught that at speed the water is harder to hit than the land."

"I'd sooner take a chance on hitting the water," she said.

"So would I. But when we struck, our remaining rocket fuel would explode."

"And that would be awkward," Florzel finished.

"Distinctly so. We'd be blown to bits."

Florzel sighed.

"What a bother! I thought our troubles were over for a little while. Now I've got to rack my poor brains again. Plenty of time to think it over, though."

She became very quiet and thoughtful.

"Any parachutes aboard this craft? Or anything we can make parachutes with?" she asked, presently.

"No, nothing," Reg answered.

"Surprising. I would have thought parachutes one of the first essentials for a lifeboat like this."

"So would I. But this boat is intended for use in space only. And you can't use parachutes where there is no air."

"Then give me the controls," she said.

Rather surprised, he handed them over.

UNDER Florzel's hands the lifeboat swept down below the clouds. A fertile countryside with vast farms, cities, roads and airplanes became visible. All lighted by the reflection of the Spot on the clouds, which from here was not red but almost pure white. Airplanes and liners he saw, then Florzel had brought the rocket-ship too low for him to see anything but forest and an arm of the sea below.

With great skill Florzel kept the jumpy rocket-ship traveling about a hundred feet above the still waters of a land-locked pool. She called to Clarabell.

Clarabell, perfectly calm, dived into the water below. He saw her come up and swim.

"Now you," she directed Reg.

With some hesitation, he took off his telepathy helmet and dived. He found himself treading water not far from Clarabell. The shore was not far away.

Florzel was still making circuits round the little pool. A bundle came fluttering down, tied to a parachute made out of a coat. Then other things came down, landing in the branches of the low trees or in water or mud.

Then Florzel herself dived.

As she left the craft a string held between her fingers operated a firing lever. The rockets flared. The rocket-boat shot up in a wide arc, being uncontrolled, and came to earth miles away. It was the only way of making sure that it did not fall among its late occupants.

There was a great roar and the ground shook as the rocket fuel exploded.

CHAPTER VIII

Rebels

WHILE he was swimming, the extra gravity did not make any difference to Reg, but as soon as he waded ashore it seemed as though his muscles had all turned to water. A heavy weight pressed on his back and on his head. Once on his feet he could walk, slowly,

for about a hundred yards, but once he sat down it was almost impossible to get up again, except with the help of a tree.

The only way was to crawl, and his knees were already sore from so much crawling about aboard the Jovian spaceship. He was, in fact, beginning to develop Housemaid's Knee.

"Stay here," Florzel said. "I'll find the friends I told you about and bring them."

Her little stumpy figure plodded away through the little stumpy trees. It was oddly like an Earth scene viewed in a distorting mirror. None of the trees were over fifteen feet tall yet their trunks were immense. The sky was white to the north, gray overhead. Except for insects, birds and fish, nothing seemed to move.

"How peaceful," he said to Clarabell. "I suppose nothing ever changes here. The sky is always the same. The light never fails, winter never comes. It is always gently warm. Even the sea has no tides."

"Oh no," Clarabell said. "Great storms blow hot air here from the Spot or cold air from the darker regions. Clouds come low and cut off the light for long periods. Changes are very sudden. Balmy summer to sharp winter in an hour. And no warning. And as for being peaceful, you will soon see. This circle round the Great Spot is the most coveted, most fought-for area in Jupiter. Every yard has been soaked with human blood."

"But where is the need for so much fighting? I calculate your circle from its size and fertility, should carry a population several hundred times that of Earth."

"It does."

"And isn't that enough?"

"Far from it."

They ate fruits that he was easily able to reach almost from the tops of the trees. The fruits were good, and a surprising number of trees were fruit trees. Clarabell explained that every plant that did not contribute something useful to mankind had been eliminated, right out to the Twilight's Edge.

A wild scream, suddenly cut short, rang through the stumpy forest.

"That sounded like a woman to me," Reg said.

"I thought it was Florzel," Clarabell said, anxiously.

"Can we help her?"

"She is a long way away. It would take you days to crawl to where she is now. Best to wait, as she said."

THEY did not wait long. Soon voices were heard in the forest, coming closer. "Her tracks lead this way," Clarabell interpreted, and "Her two friends should be near here. We'll get all the lot of them."

"Florzel is in trouble, and we look like being in danger," Clarabell declared. "They mistake us for their enemies. We must hide."

"And desert Florzel?" Reg demanded. "Never."

"No prisoners are taken in Jovian wars, except to torture confessions out of them."

"I'll chance that. You hide."

But she stayed with him.

Presently a rough-looking crowd of Jovians crashed through the branches. Their clothes were made of skins and leaves. They carried knives, swords and spears. With cries of triumph they rushed upon Clarabell and Reg, seizing their arms and waving ugly knives in their faces. So closely and menacingly were those knives flashed that more than once Reg expected his nose to be cut off.

One of them barked a gruff order. He was wearing a tattered uniform that had

once belonged to a Jovian soldier, but the badges were all torn off.

To Reg's relief the knife-waving stopped, and he was glad to see that Clarabell was not injured.

The leader stared at Reg, amazedly, and shouted some question. Reg shook his head. Infuriated, the leader snatched up a knife and menaced Reg's eyes with it.

"Answer me!" he screamed in Jovian.

Clarabell was fighting to make herself heard.

"He does not understand our speech," she called. Knife-points jabbed cruelly into her for refusing to be silent.

The leader turned on her.

"Then who is this long tree in the form of a man who does not answer when he is spoken to?"

"You wouldn't understand. He is from another world. He comes from the planet Earth."

The leader's brow became furious.

"I don't know what you mean. If you are trying to fool me—"

Neither he nor his men had ever heard of the Earth, the sun nor any other heavenly body. For them nothing existed beyond the perpetual white cloud-curtain that was their sky.

"She means he comes from a distant country, chief," a man suggested.

"Then why can't she say so? Somewhere in the Regions of Darkness I should say, from his pale skin," growled another.

"I reckon he is not a man at all," yet another put in. "He is a Balloon-Bird. Otherwise, why aren't his legs stronger? He can't walk. He's a balloon bird that's lost his balloon and can't fly away until he grows a new one."

The curious theory found favour at once.

Meanwhile their leader had found a new interest. It was the pair of fallen telepathy helmets. Reg, trying to explain, was allowed to get an arm free. He put on one helmet, and the chief was persuaded, rather suspiciously, to put on the other.

Reg was in telepathic communication with the savage chieftain of Jupiter's Twilight Zone.

REG tried to explain who he was.

"I came from Earth in a spaceship. There was a collision. I was captured and badly treated, but got away and came down here in a small rocket-ship," he tried to explain.

But the savage knew nothing about space-ships. Reg's thoughts got through to his understanding only in altered form.

"You come from far away, high above the clouds. Then you *are* a balloon bird. You had an accident and your balloon was broken. Enemies surrounded you, but thanks to your two friends you got away safely down here out of the sky. Well, Mr. Bird, I reckon that ain't *all* lies. But you have left a lot out. Why did you and your friends bomb our village."

"Ugh???" gasped Reg.

"Yes, you pretend surprise pretty well, Mr. Bird. We saw your ship come by, we saw the three of you jump out, and then a big bomb landed on our village. Hundreds of houses were destroyed and scores of people were killed. Why did your friends and you do that Mr. Bird?"

"Ah, ah, really, I assure you—" stammered Reg.

"Yes, yes, I know. Pretend surprise. But you don't take *me* in. Nor any of us. Soon as I find a tall enough tree I'm going to hang you and your friends. See if you can fly with a rope round your neck and hands and feet tied, Mr. Bird."

Roars of approval came from the men around them. The chieftain had been speaking aloud, as well as telepathically.

"You are making a mistake," Clarabell called, desperately.

"Shut her mouth! She's one of the painted aristocrats from the cursed Towers of Tormel. It was a lucky break her getting into our hands. One of our greatest enemies! She shall suffer for the wrongs of all of us."

The massed tribe roared approval. Clarabell's arms were painfully twisted behind her back.

"Why don't you give us a break? Why don't you let us speak? I can explain," Florzel begged.

"Can you explain away our bombed houses and dead people?" the chieftain roared. "Gag all three of them!"

All three were gagged and their wrists tied behind them. Then nooses were thrown round their necks and passed over the branches of trees. It took some while to get a rope round a branch tall enough for Reg. Then the loose ends of the ropes were tied to the tails of three horses.

In happier circumstances Reg could have laughed at the absurd figures of the stocky Jovian horses and their pillarlike jointless legs. Their legs moved in a sort of circular manner, back, out, forward, in, back, out, forward, in.

Jovians began to drive the horses and to haul the three friends into the air by their necks. Slowly the slack was taken up. Reg's rope tautened first, because it was over a higher branch. He was hauled from a sitting position to his feet, then to tiptoe.

"WAIT a minute! Wait a minute!" One of the savages was shouting excitedly, and waving something.

"What is it?" snapped the chief.

"I've got an idea!"

There was laughter.

"You are always getting ideas. What is it this time?"

"Don't hang these people yet. We can make money out of them!"

"How can we do that?"

"By holding them to ransom! See these papers here? I took them out of her pocket," pointing to Clarabell. "Her father is a Big Shot."

"I told you that. I could see it by her clothes."

"But you don't know how big a shot he is! Read this!"

"You know very well that you are the only man here who can read," growled the chief, in surly tones. "What does it say?"

"It says her father is of the Inner Council of Tormel. A close adviser of the Emperor himself!"

"What, of Harwell the Accursed? Yes, I see the Royal Insignia. Then you are right she must not be hanged. She must be tortured."

"No, no! Listen to me! Cut her right ear off. Send it to her father with a letter. I'll write the letter. I'll say, 'This is your daughter's ear. We have the rest of her. Send one million currency units and you can have the rest of her in one piece and in working order'."

The cold-blooded scheme delighted the savages.

"Think we'll get a million?"

"Sure of it."

"Loose the ropes round their necks then."

Clarabell knew quite well that her father would not pay a brass penny to save her after the "disgrace" she had brought on him.

"There is one thing," said the chief, thoughtfully. "Who is to take the message? The Emperor's soldiers are in the habit of torturing us escaped slaves to death when they catch us."

"Let her take it," pointing to Florzel. "She is Clarabell's servant. Seeing her will prove to Clarabell's father that we've really got Clarabell."

Florzel's gag was removed.

"I can get your ransom," she announced calmly. "You need not cut off anybody's ear or write any letter. How much ransom would you want for all three of us?"

"Two million currency units."

"I think I can manage that. Untie my arms and I'll see."

Florzell's arms were freed. Then, from hidden pockets of her suit she began to pull out Jovian diamonds, pearls, and other precious stones.

"My jewels!" Clarabell thought, in amazement.

"There must be three million currency units here," the chief gasped.

"I know. Why didn't you let me explain before? We three are in revolt against the cruel Emperor. We came here with the jewels as a contribution to your funds to help you buy arms and overthrow the Emperor. Our ship falling on your village was an accident. We didn't know the village was there," Florzel explained glibly.

Actually, of course, the jewels had been stolen from Clarabell's luggage while Reg was getting ready to escape from the Jovian space-ship. But, seeing the use they were being put to now, Clarabell was ready to forgive the theft. She would sooner Florzel had the valuables than the Captain of the space-ship anyway. Florzel, Jovian female catburglar, had nearly brought off a remarkable coup.

AT ONCE the other two were released and welcomed as recruits to the band of escaped slaves. What had happened was carefully explained to Reg via the telepathy helmet.

"That's fine," he said. "But I don't see what use I can be in your struggle against the Emperor. I can barely stand up on your planet."

The same idea struck the others.

"What can we do with Mr. Bird?" they asked one another. "He had helped us. How can we help him in return?"

"What he really wants is to get back to his chums up in the air. He didn't mean to tell me that, but I picked the thought up on the telepathy."

"We can't do that."

"I think we can. Listen."

A number of the savages went away, talking. Neither Florzel nor Clarabell heard anything of this. They were busy arranging a meal for themselves and Reg.

After they had filled the empty spaces inside them, several savages came to Reg and beckoned him away. They seemed to have something they wanted to show him.

It proved to be a large balloon full of helium gas. Many Jovian plants produce helium gas naturally, and the Jovians know its value.

"But what are you going to do with that?" he asked.

Nobody understood him.

Very puzzled, he let them attach the balloon to his body.

"Now you can go back to your friends," they said. "Aren't you pleased?"

Too late, he realized that they meant to cut the balloon adrift and let it carry him up in the air. He shouted. He kicked at them. He tried to tear himself loose.

It was too late. The balloon shot up in the air, carrying him with it.

Miles up he went. He could see distant cities, rivers, oceans. White mists began to swirl round him. He was in the clouds. Reg Whistler had gotten into a really queer scrape.

CHAPTER IX

The Fisher Birds

IT REALLY was no joke. The wind blew strongly up here, although it blew so steadily the same way that all seemed peaceful. It was only when the palely white mist around him changed to a brilliant rose-red one that he realized that he had gone up several hundred miles and was either over or near the Red Spot. There was no hope at all now of Florzel and Clarabell being able to rescue him, even had they the latest resources of Jovian science in their hands. In these colossal cloud-belts ten million airplanes might search for him for a century and not find him.

Ten feet above his head the balloon bellied out. If he could have reached it he would have tried making tiny holes in it and letting himself down gradually. It might as well have been a million miles away. On Earth Reg would have climbed the ten feet of rope with ease: against Jupiter's gravity it was impossible.

It was very warm up here, even too warm. That was because he was over the Spot. When he drifted to one of the Regions of Darkness he knew he would freeze to death. The air was thin, but that was no disadvantage. On the ground it had been too dense for comfort.

He had plenty of time to study the air-life of Jupiter. There were hours and hours of time and nothing at all to do. And was there some of that air-life in Jupiter's great clouds, too! Birds and insects of every possible shape and size. Great rambling plants, supported by helium bladders, grew here. By great efforts he succeeded in getting hold of one of these, but it was no use to him, only drifting with him.

So that it was with an immense, almost superstitious shock, that he suddenly found a distinctly human face staring at him.

The body that was attached to this face by some twenty feet of serpentine neck was a helium balloon twenty feet in diameter. There was one wing, or sail, on top, a sort of dorsal fin of feathers; and at each side of the round body a snaky, coiling arm of incredible length and thinness carried a long tube with a ball at one end.

Reg and this human balloon stared at each other. As far as Reg could tell the other was neither friendly nor hostile. He was just curious, and suspicious. As you would be if you came across a large animal the like of which you had never seen before.

Reg tried to talk in sign language, to say that he was helpless and would be glad of assistance. Any sort of assistance. He was not fussy about it. Because, without assistance, he would either drift so high that his balloon would burst or over a dark area and freeze. Either way it would be the end of Reginald Whistler.

The balloon man did not understand. The movements of Reg's arms and the expressions on his face he seemed to take for threats. His two long tubes were aimed at Reg at once, and by movements of his dorsal wing, he began to fly backwards, away from Reg.

DESPERATE, Reg saw his chance of help flying away from him. He must explain, somehow. He shouted, "Please come back!"

The balloon man did not understand. With an excited squawk, he let fly with his tubes.

They seemed to operate by some sort of compressed air, or gas. One shot went through Reg's balloon. He could hear gas whistling out.

The balloon man stopped shooting.

Perhaps Reg's obvious alarm on finding himself being fired at convinced him that Reg's intentions were peaceful. He went on flying slowly backwards, keeping Reg, or rather, his balloon, covered. He also began to make a loud whistling noise.

Presently more of these odd balloon men began to appear, dozens of them, all round him, staring at this queer animal and seeming to ask one another what it was.

A lot of time passed. Reg could think of nothing to do to improve the situation. After the unfortunate results of his first efforts he did not dare to attempt to communicate with the birdmen again. More and more birdmen kept arriving. Reg might have been a prize exhibit in a circus the way they gaped at him.

His balloon was losing gas. Very slowly at first then faster he was losing height. His audience of balloon men drifted down with him.

At last they seemed to make a decision.

With a hundred gas-tubes menacing him, Reg was seized by a score of the long tapering arms with their straggling "hands." They felt him over. Other hands seized the rope he hung from and were towing him some place through the air. The whistle of escaping gas had stopped. The balloon men had patched the holes with patches and puncture repair outfits carried attached to their wings.

They were going some place, and fast. But the balloon men did not believe in work. They simply went up until they found a wind that blew in the direction they wanted.

He knew he was high. He could see two of the moons through the rosy-hued clouds.

Presently he reached a regular interlacing jungle of the helium-bladdered plants. It was the balloon-men's idea of a town. He saw clusters of eggs hatching under concave mirrors. He saw balloon-men with c o l o r e d designs painted on their translucent balloons, but whether these designs were meant to denote policemen or soldiers or merely to increase sex-appeal he never found out.

He came to a long branch where various objects hung on short cords. Nearby several balloon men were operating a queer machine.

Coming closer, he saw that the hanging objects were animals of various kinds, dead. It was a sort of larder or butchers' store, in the open air. . What puzzled him, though, was how these ground animals were got up here, many miles up in the air.

It did not please him nearly so much when he h i m s e lf was tied in place among the dangling corpses. Nor when he realized that quite a number of the corpses were those of men and women from the ground below.

REG WHISTLER hung in the air in the meatstore of the balloon birds for several hours. Fortunately he had a little food and an emergency bottle of water with him. In his position eating and drinking seemed hardly worth the trouble, but presently he got hungry and thirsty, and finished up his emergency rations.

Meanwhile, he watched the balloon birds floating round him. Some came with knives and cut joints off the carcasses. The machine in front of him had a windlass like a well, and balloon birds, peering intently into eyepieces, seemed to be watching the end of the rope far below. Some powerful infrared telescope it must be to see so many miles down through thick cloud.

Occasionally the watcher at the windlass would give a signal. At once an-

other birdman would pull a lever, and the windlass would begin to wind up at great speed. Miles of thin cord would wind onto the windlass, then suddenly the end of the rope would appear. But the windlass went on winding. Reg realized that the end two miles of rope were invisible. At last would come into view, struggling sometimes but more often dead, an animal or a man impaled, he discovered, on a huge, invisible fish-hook!

The "catch" would be taken off the hook, hung in the larder beside Reg, the blood that made the hook temporarily visible wiped off, and the hook lowered again. Sometimes the rope would stop winding and be allowed to run out again. He assumed that these casts had missed.

Reg now knew exactly where he was. He was a piece of meat in the larder of the fisher-birds.

The larder was steadily filling up. In time he could not see the fisher-birds for dangling corpses. Perhaps, if he was very careful, he might have a chance of escape.

He began swinging himself backwards and forwards. The branch swayed so much he feared he would be bound to be discovered. But he succeeded in reaching the next branch and holding on. It was a very heavy strain, for his body weighed nearly three times as much as normal.

None of the fisher birds seemed to have noticed, despite the swinging and banging of carcasses he caused. Waiting for the disturbance to die down, he succeeded in pulling the two branches together and reaching his balloon. A few moments of cautious work and he had cut balloon and himself free and was attached to his balloon again.

What now? He could not just jump loose and try to float through the whole town of fisher-birds. They would be after him with their gas-tubes in a moment. He would find himself very quickly back in their larder, with no chance, this time, of escape.

How could he get away quickly? To let go of the balloon and jump was one way. Better than staying in this place, perhaps. But wasn't there some other way?

Of course there was!

HE CLIMBED to the carcass of a large animal, wrapped both of his legs and one arm round the body and cut it loose.

As he had expected, the weight pulled him down, overpowering the upward drag of the balloon. But the balloon became wedged between the two branches. For several horrible seconds he thought it was going to be torn in pieces, then it pulled away.

He was dropping almost like a stone. And he knew he was safe from pursuit. The balloon birds could not fall at this pace unless they used heavy weights to drag themselves down. In any case he had probably left their abode too swiftly for them to know what had gone.

Now, so calm and peaceful, below him stretched the landscape of Jupiter with its vast civilizations bathing under the light reflected down by the clouds from the Red Spot. The Spot that was white to Jupiter, red to Earth.

What would happen to him when he landed?

Then the vicious animal in his arms, reviving, turned with a snarl and tried to bite him. It was the last thing the creature did, for Reg, startled, let it drop, a matter of about five miles. He could not have supported it much longer, anyway.

He would sooner have held onto it a little while longer, though. Five miles is a long way to drift down. He was afraid to make holes in the balloon, for

fear that he would be unable to close them again. He seemed to be falling fairly fast, but could not be sure. One thing certain was that a strong wind was blowing him along at a rapid pace.

He might come down in the center of the immense lake of molten rock that made the Red (or White) Spot. If he had found himself drifting that way he would have punctured the balloon and chanced the ducks.

But he was floating the opposite way, towards the Perpetual Darkness beyond the Outer Twilight Zone. He judged he would come down nicely in a forest just in the outer fringe of Twilight.

As a matter of fact, he misjudged the distance. Or else a stronger wind blew up. For suddenly he found himself right in the Perpetual Darkness. Before him was a pale sheet of snowy whiteness.

Suddenly he crashed into deep, soft snow.

CHAPTER X

Mountain of Wrecks

IT WAS not absolutely dark. He could see white snow-mounds and hummocks before him. The whiteness stretched on and on before him for miles, clearer and brighter the farther away it was, until it ended in a sharp point. He was at the lower slopes of a fairly considerable mountain, for Jupiter.

Under him the snow was light. Without his balloon he would sink deep into it. Hopeless to think of walking through it. Once he let his balloon go he would be lost, lost as completely as he would be on Earth's South Pole, without supplies or company or warm clothing.

The balloon kept him from sinking in the snow. And the wind blew strongly on its smooth bulk, blowing him up the mountain, away from the lighted habitable zone of Jupiter, into the darkness.

There was nothing but snow to be seen, nothing solid to try to anchor himself to, except the hummocks. He steered himself to one and hung onto it. Snow crumbled away under his hands, revealing metal. The hummock had built itself up during long ages around a crashed airvessel of some sort.

He went on the next, and the next. Every hummock covered a wreck. The mountain, rising so suddenly just within the darkness zone, had for long ages been a death-trap for Jovian aircraft and space craft. Or else some great battle had once been fought here.

He hurried from hummock to hummock, seeking a wreck that was serviceable. At last he found the stern tubes of a space-vessel sticking up, and an open airlock half covered with snow.

Tying his balloon to a projection, he dug with his hands and at last, nearly frozen, succeeded in clearing the door and making his way in.

A lot of snow had drifted inside. He shoveled it out, and at last was able to make his way about the space-ship inside.

It was of medium size, lying at a sharp angle. He was able to get the lighting system working. The ship was in good order, almost undamaged, but with very little stores or fuel. The crew had apparently abandoned it and tried to reach safety on foot.

A beautiful ship, capable of carrying him almost to Earth, had it been stocked and fueled. He even wept at the bitter disappointment of finding the fuel tanks empty.

But still there was a chance. When the wind died he might be able to collect fuel and stores from other wrecks. For the time being he was glad of food, warmth, and a chance to rest.

When he awoke he felt much rested. The wind had died away. He began journeying to and from other wrecks, carrying stores and fuel.

It was a very long job, taking him several days. In spite of the support of the balloon, Jovian gravity dragged at him sorely. A man not absolutely determined could never have brought the long, bitter task to a successful end. More than once he nearly lost his base ship in the almost complete darkness.

FOR days and days he struggled, though here there were no nights or days, only a dim light about equal to a clear, moonless night on Earth with the glittering stars gazing down. He must keep going, though Jovian gravity dragged at him bitterly, though he had to fight every step of the way through deep, loose snow, though he had hundreds of tons to transport several miles. Otherwise he would never see the stars again, nor the sun, nor the moon, nor the beautiful Earth.

Sometimes, when he weighed up what he had to do, it seemed quite impossible. If he had had good roads and a big truck it would still have been a big job. The hard-packed snow all round his base ship showed how much labor he had performed.

Determination kept him going.

He made himself a sled so that over the packed snow his loads had only to be pushed, not carried. Later, giving up a day, or rather one working period, he fixed an airplane engine, with propeller, to his sled, and succeeded in doing much of the work by mechanical power.

Soon after, the light failed altogether.

The clouds had been unusually high for a long while, giving him some light to work by. Now they came down again, and there was an end of all light.

Worse, a strong wind blew up, coming out of the Regions of Perpetual Night. Clarabell had spoken of sudden violent changes of weather in the Twilight Zone. Now he experienced it. From an air temperature of about 40 degrees F., he arrived at 100 below zero in twelve hours.

His balloon tore away and was lost. It began to snow.

Reg stayed in out of the blizzard. Once outside in it he would be lost forever. He checked over his stores. Barely sufficient. He must try to make it do. He would be unable to get any more.

Now was the time to put his plan to test.

His ship was frozen hard in ice and pointing her nose down into the ground. It could not be called a favorable launching position. An army with axes would be needed to chop her free of the ice. But he had plenty of atomic fuel for the purpose, if his plan worked.

The plan was to *melt* the ship free.

HE FED tiny doses of fuel into the rocket-tubes and fired them. Every tube backfired. They were all choked with ice.

With a heating unit he thawed one out, then let it run on low power until the heat it generated freed the rest.

His tail was soon free of congealed ice.

Next he worked on the smaller steering rockets of the nose. When he succeeded in warming the entire hull of the ship, he reasoned, she would be free.

The ship got very hot inside, but still the outer hull was as cold as the ice itself. Success now depended on patience, and luck.

Suddenly, while he slept, the ship lurched and groaned. A loud cracking noise sounded. She moved, and buried herself deeper.

Reg jumped and ran to his controls.

The nose rockets he turned slowly on to full throttle.

For a while nothing happened. Exhaust gas filled the tiny ice-chamber, its pressure increasing.

Suddenly the ship shot out of the ice like a cork out of a pop-gun.

REG, unable to see anything outside, not knowing which direction was up and which down, worked nose and driving rockets according to a plan worked out long before.

Now he was going fast. Some place. But he didn't know what place. He could not see.

Shutting off all rockets, he looked at the gravity-indicator. He was aiming straight at the ground. His ship had described a sort of arc.

In a moment he had brought her nose up and was headed up, at an angle. In a little while he was able to see those old familiar, faithful guides, the stars.

It was like being back among old friends.

He headed over the Red Spot, and fighting off a desire to go to sleep for a month, dived down into it.

Stars vanished. Red mist was all about him, becoming white mist as he settled lower.

He came out of the clouds directly over the searing heat and blinding light of the Spot itself. Out over the lava lip of the vast crater, over cities and towns of civilized Jupiter, catching his breath at the vastness of it and the number of its people, then a long search for the forest by the arm of the sea where he had left Clarabell and Florzel. Several times he was fired at.

It took a long while to find it, because now the land was covered with snow in one of its unpredictable winters. But find it he did, and settled neatly down on his rear shock absorber.

For a long while nobody came near him. The rebel band took him for a raider from the city and its Emperor, their enemy. But at last one venturesome scout came close, and he showed himself.

After that the chief came, and his men, and best of all, Clarabell with the telepathy helmets.

"This is great," the rebel chief said. "With this fine ship we can bomb the Emperor's cities and his palace."

BUT Reg's one idea was to get hold of Clarabell. When she came and they got telepathy helmets on he told her that he was not interested in fighting a war that was the business of the people of Jupiter after all.

"Come back to my own planet, Earth, with me. I can make you happy there. Your own world has treated you badly. Leave it."

"I should love to," she conveyed to him. "What you tell me about your world makes me long to see it."

"And Florzel?" he asked.

"She is married to the rebel chieftain now. My jewels are being spent through underground channels on war weapons to fight the Emperor with. And on fine clothes for Florzel. Florzel is happy here."

"Fine. That woman has been a great friend to us, but she might, after all, be a nuisance after I got her back to Earth. And I really have not quite enough fuel and supplies for three passengers. Will you tell the chief that I am about to make a test flight? Make his men stand clear to avoid the rocket blasts."

Soon the ship roared into the sky again. Out in space she found an orbit, stepped up her speed, went further out. Ellipse became parabola. . . .

Reg felt gloriously happy. He was headed for home, with a bride from

Jupiter. The only fly in the ointment was the thought of Captain Lovell and his men, still held captive somewhere on Jupiter. Yet, he told himself, what he was doing was the best that could be done for them. He would tell what had happened to them. Then, if it was at all possible, arrangements might be made to rescue them, or if that was too late to avenge them. Other ships could be warned of the danger, too, and keep well away from Jupiter.

He went happily off to sleep, his first sound sleep for many days.

Suddenly, nearly asleep, he laughed. Clarabell wondered what was amusing him.

He was imagining himself introducing Clarabell, the three-foot lady from Jupiter, to his friends.

This ship held many strange devices. Patented, they would make a fortune. He was not taking Clarabell to poverty.

THE END.

MYSTERY ELEMENTS of the CHEMICAL WORLD

PROBABLY the most mysterious of all chemical phenomenon is catalysis. Two substances may be reacting very slowly, so slowly in fact, that it may take months for the reaction to go to completion. Behold, we add the suitable catalyst and the reaction goes to completion perhaps 1000 times as fast as it would if the catalyst were absent.

Catalysts are extremely important. They are more than just an interesting oddity, whose only purpose lies in amusing a lot of absent-minded professors. Where would our sulfuric acid industry be if it were not for the catalyst? How would we be able to "crack" the heavy petroleum oils and hence produce the valuable gasoline—without catalysts? Not only in industry, but also in the human body do we meet a multitude of catalytic reactions. Did the reader ever wonder how his food is digested; how the digestive juices can break down the solid and complex particles of food into the simple easily absorbed sugars, amino acids, and fatty acids? The process is carried out by the enzymes in body. But, enzymes, despite their fancy sounding name, are nothing but catalysts capable of breaking up the complicated molecules of the food we eat.

Let us examine some of the peculiar properties found in catalysts. While a catalyst speeds up a reaction, it does not increase the amount of product formed. For instance, when we react an alcohol with an acid we get what organic chemists would call an ester. The production of an ester is a slow process, which takes months to go to completion. Let us assume that we wait a month or so for all the acid and alcohol to combine. Let us assume that when all the acid and alcohol combines we have one gram of ester formed. Suppose now we wish to speed up the formation of the ester; we do not want to wait a month to get our sweet, perfume-like substance. All we need do is to add a catalyst to our reacting alcohol and acid. Using a little heat, and presto our ester is formed. Actually, what we have succeeded in doing is to force the acid and alcohol to react more quickly—the amount of ester produced, however, is still one gram. In the above process we use sulfuric acid as a catalyst, and if we should start with a certain number of grams of sulfuric acid—say 10 grams—we would end up with the exact number of grams of sulfuric acid. The catalyst does not undergo any reaction when taking part in its speeding up process.

THERE are many interesting theories as to why a catalyst should speed up a reaction. The fact that a good many catalysts have the power of attracting and retaining large quantities of substances to their surface, gives us a good point to build our hypothesis about. This adsorbing power is very great among those catalysts that can be finely divided, and thus present an enormous amount of highly porous surface per gram of weight. There is prepared charcoal today that possesses about 1000 meters of surface per gram.

What if a substance has a tremendous amount of highly porous surface? What if a certain metal, say platinum, has the power to hold a large quantity of foreign substance on its surface? How does this all apply with the speed of a reaction?

In the first place, it is a common fact to chemists that the greater the concentration of two reacting materials—or in reality the closer the molecules of these substances come together—the greater the speed of reaction. When a surface catalyst is introduced into a reaction, it collects the reacting substances on its highly porous sur-

face; this really brings the molecules of each substance closer together than if the catalyst were not present. The result is that the molecules are more highly attracted, and since they now travel a smaller distance before they combine with one another to form the new substance, we have an accelerated rate of reaction taking place.

WHEN we react hydrogen with other elements, it is found that finely powdered platinum serves as an excellent means of speeding up the reactions. In fact, many reactions involving hydrogen molecules cannot occur if we neglect to add this all important absorbent platinum. In the case of hydrogen reactions, we assume that the attracting force of the platinum atoms is strong enough to break the bond which links two hydrogen atoms in the form of a hydrogen molecule. When this molecular bond is broken, we now have in the place of a sluggish hydrogen molecule, two activated hydrogen atoms. No wonder the reactions will proceed more quickly.

We may think of surface reactions in another light. Think of a molecule as being dipolar—in other words as having two different ends. Let us call one end of the molecule "N" and the other end of the molecule "S". Suppose that in order for a molecule "A" to react with molecule "B", the "S" side of molecule "A" will have to meet the "N" side of molecule "B". Now the molecules move about at random and when molecule "A" collides with molecule "B", it is just as probable that the "N" side of molecule "A" will collide with the "N" side of molecule "B", as will the "N" side of molecule "A" collide with the "S" side of molecule "B". Therefore it is just as easy for two molecules to collide and not react as to collide and react.

Suppose we had a catalyst capable of drawing the inactive parts of all molecules, say part "S", toward its surface so that the entire outer surface of the metal would present a continuous "N"—or active front. Think of how much more active these molecules would now be, because they had oriented themselves so as to present a common active front. The substance possessing these molecules would be transformed by the catalyst from a half active substance to a twice as efficient reacting substance. Do you now wonder why the speed of reaction should increase?

IN THE field of organic chemistry the intermediate type of reaction is more prevalent. Let me give you an example of this type of catalysis. Suppose you were playing the outfield in a baseball game and a long drive was hit clear over your head. Suppose you rushed over to the wall, retrieved the ball, and attempted to relay this ball 386 feet, so it might reach the plate in time to catch the runner who was now rounding third base on his way to the plate. If you had a weak arm, that 386 feet would seem a long way off. Now wouldn't it be much more convenient and much more rapid if the second baseman rushed out into short center to relay your throw? You would now only need to throw the ball half the distance, and the second baseman acting as a rejuvenating power station, could quickly step up the speed of your ball on its trip to home plate. Or we have the case of the basketball player who would rather pass to an intermediate team mate than shoot a long shot.

The catalyst may be compared in a sense to the second baseman or the intermediate team mate. If molecule "A" is a long time in reacting with molecule "B", perhaps the catalyst can solve this situation by forming a loosely bound intermediate product with "A"—namely "A C". Then if "A C" were a very good and rapid reactor with molecule "B", we might get "A C" to react with "B" to give "A B" and liberate the catalyst "C". In other words we get the same results, or the same final product, that we would get if "A" reacted directly with "B"; only by virtue of the intermediate compound, and its greater activity with "B", we have succeeded in speeding up our reaction. The ester formation that we spoke of earlier in this article comes under this type of catalysis.

PROBABLY the most important of all catalytic reactions involves the synthesis of carbohydrates by the plant kingdom. This is the all important reaction of life. Where would we animals be if the plants were not capable of this catalytic reaction? The answer is that we just wouldn't be. It seems that the plants have the power to combine the carbon dioxide of the air with water, which they absorb from the ground via their elaborate root system. In order for this combination to occur, there seems to be two requirements needed. There must be a presence of light and a presence of a green substance, called chlorophyll. Perhaps the purpose of the light lies in some ability it may possess of activating the chlorophyll. At any rate, a plant cannot go through its synthesis in the absence of light. Nor can a plant that lacks this green coloring catalyst (chlorophyll) produce its own food. Hence the non-green plants, such as the bacteria and fungi, are destined to live the life of a parasite or saprophyte.

In using catalysts, the chemist must constantly watch out for those materials that can poison the catalyst. In case of surface catalysts, a catalyst poison would probably form a layer over the adsorbing surface of the catalyst and hence render it useless. If on the other hand we wish to retard a rapid reaction—as in the case of the gasoline and rubber industry—we may then find use for a negative catalyst, which probably works in a directly opposite manner from the catalyst. The catalyst activating molecules; the negative catalyst inactivating the activated molecules.

Again I ask the question: "Where would we be without catalysts?" The answer again is: we just wouldn't be, for in catalysts we have the very messenger of life.

SILVER RAIDERS

By P. F. COSTELLO

THE observation ship bearing the insignia of the Federation Patrol was a streaking pin-point of light against the black immensity of the void. It was blasting across the trackless wastes of space toward Earth.

On the forward control bridge of the hurtling ship, second officer Ward Hanley turned an instant from the *visi-screen* and grinned cheerfully at his lanky assistant, Brick Masters.

"Just a few more hours," he said, "and we'll be home again. This has been a long trip."

"And a dull one," Brick said sourly. "Why they want to photograph millions of square miles of nothing is more than I can figure out."

"They've got to use us for something," Ward said. "We can't just sit around space bases and draw our pay. These observation flights at least break the monotony a bit."

He turned back and studied the *visi-screen* with alert, careful eyes; but its broad black screen was empty, except for a trail of light in one corner which was caused by an asteroid storm a few hundred thousand miles away.

"The Federation hasn't got much to do these days," he said. "The space wars ended years ago, while you and I were still in knee pants." He sighed slightly. "A Federation officer then had a real job. But now . . ."

He shrugged his wide, heavy shoulders and didn't bother to complete the sentence. His tanned, clean-cut features were serious under the shadow of visored cap.

"I know what you mean," Brick muttered. He shoved his cap back on his head and frowned disgustedly. "This job would be fine for an old man with a

The forward gun of the patrol ship opened fire

OF SIRIUS

The surprise attack of that mysterious ship out in space was nothing compared to the attack his government made on loyal space captain Hanley!

touch of gout who needed a good rest. I'm getting sick of it. If things don't pick up, I'm going to resign my commission and take a crack at getting a master's ticket for the Merchant service. At least you can make some money with your own tub."

"That's true," Ward said slowly. He was silent for a moment. "You know," he said, at last, "I've had the same idea myself for several months. I entered the Federation service because I figured Earth might need fighting officers again some day. But I don't want to sit around the next thirty years twiddling my thumbs and waiting for a pension."

"That's the way I feel," Brick said somberly. He shook his head disgustedly. "And the Federation is getting worse every day. Did you see the last bulletin before we left? The one about stripping armor and cannon off everything in the service except half a dozen experimental fighters? What kind of an outfit will we be without armed ships? We might just as well be in the Merchant service then."

Ward frowned thoughtfully.

"I saw that bulletin," he said. "I suppose the brass hats know what they're doing, but wouldn't we be in a sweet spot if we were attacked after we had junked all our armed ships?"

"Who'd attack us?" Brick asked in surprise. "The planets in our system are uninhabited and the Federation rounded up the last of the freebooters years ago. The only ships operating in the void are licensed by the Federation and their position and movements are known every minute."

Ward shrugged. "I was stating a hypothetical proposition. There isn't any likelihood of our being attacked, but it seems to me we shouldn't bank absolutely on that. As long as there's a possibility of trouble breaking, we should keep an armed force ready."

"But that's just the point," Brick said gloomily, "there isn't any possibility of trouble starting."

"Maybe," Ward said.

HE WAS silent for an instant as he studied the blank face of the *visiscreen*. Finally he turned to Brick and his grey eyes were thoughtful. "It's a funny thing, Brick," he said quietly, "but this attitude of pacifism has gotten much stronger recently. Until a few years ago the policy of Earth was preparedness — preparedness for any contingency. Earth learned that lesson back in nineteen-forty, over a hundred years ago. But now, there seems to be a systematic attempt to completely change that policy. And I've been wondering a lot about it lately."

Brick scratched the top of his red head and frowned at Ward.

"I don't get what you're drivin' at," he said.

"Maybe I don't know myself," Ward said ironically. "But I do know that a number of officers don't agree with the Federation's present policy of destroying our offensive space f o r c e. And," he continued grimly, "it's odd how fast such officers disappear into obscurity. Remember Captain Slater?"

"Certainly," Brick said. "His books on space fighting are standard texts. He was about the greatest fighter pilot the Federation ever developed. What happened to him?"

Ward shrugged.

"He was tactless enough to raise hell when the orders came through several years ago to cut the fighter squadrons in half. And when the restrictions on attack firing in the void were handed down he let loose another blast. That was five years ago."

"Where is he now?" Brick asked.

"Nobody knows," Ward said. "He resigned his commission and left the

service. That, at least, is the official story. But the same thing has happened since then to dozens of officers who had the guts to speak their minds."

"Well," Brick said, "maybe they're better off on the outside. At least they can make a living."

"That's one way of looking at it," Ward shrugged. He turned again to the *visi-screen*. This time he noticed an oblong silver object moving dead ahead at approximately the speed of his own craft.

"Take a look," he said to Brick. "What do you think?"

Brick studied the screen with an intent scowl on his face, before turning to Ward.

"I'd say it's another ship, except it's too damned big. Bring it up a bit closer and maybe we can tell a little better."

WARD snapped on the telescopic lens and the silver oblong on the *visi-screen* came into clearer sharper focus; and it was unmistakably a space ship.

"See any markings?" Ward asked. He was hunched forward, straining his eyes to pick out some identifying feature or insignia.

"Nope," Brick shook his head. "She isn't showing her ensign and there don't seem to be any license devices at the bow."

"Pretty well covered up," Ward said slowly. He studied the screen for another thoughtful moment and his eyes were troubled.

"She isn't a Federation ship," he said musingly. "And I've never seen a Merchant craft of that size or with those lines. She's probably fast as the devil."

Brick looked up from a directional chart that was pinned to the desk in front of him.

"Her course is about on ours, just a few diagonal points off to the left. I'd say she's making a wide sweep to head back away from Earth."

"What's her speed?" Ward asked with a frown.

"Pretty close to ours," Brick answered. He glanced inquiringly at Ward. "Do you think we should call the old man?"

Ward shook his head slowly.

"No. He was practically out on his feet when he turned in. And his fever hadn't gone down." He studied the *visi-screen* for several seconds, watching the slow movement of the silver oblong before he sat down at the central control desk and picked up a communication hose.

He pressed a button that connected him with the radio compartment.

"Central Control to Radio," he said briskly. "Stand by to send message."

"Right, sir. Standing by."

"Contact ship dead ahead, few points diagonal to our course. Send them our compliments and ask them their name, charter, destination and last port of call."

"Right, sir. I'll give you their reply in a few minutes, sir."

Ward pressed another button and spoke to the rear propulsion power room.

"Central Control to rear power room: Give me ten additional units of speed."

"Right, sir."

A few seconds later Ward felt a slight vibration under his feet as the ship responded to the stepped-up blasts from the rear propulsion tubes. He kept his eyes on the silver ship on the *visi-screen*. For a moment or so they drew perceptibly closer to the strange ship. Although its size increased noticeably on the screen, they were still unable to notice any identifying markings or insignia.

BUT then the silver ship obviously accelerated its own speed for after a few moments it began to draw away, gradually but definitely.

"They've sighted us," Ward said grimly, "and they're obviously not going to wait for us."

He spoke to the power room again —one clipped sentence.

"Full speed ahead!"

"Right, sir."

The ship leaped forward with a velocity that made its former speed seem as if they had been idling; but after a moment or so Ward realized that the silver ship was keeping the same distance between them. It had stepped-up its speed to match their own.

The buzzer from the radio compartment sounded and Ward picked up the communication hose quickly.

"Radio to Central Control: Ship ahead refuses to open communications."

"Send this message," Ward snapped. "Order them to reduce speed to 40:40 and stand by for lock contact with this ship. Send that as a direct order from the Federation Observation ship, *Astra*. If they refuse to open communication tell them we will open fire! Have you got that?"

There was a doubtful pause from the radio compartment.

Finally the operator said, "Yes, sir."

Ward tossed the communication hose back to the desk and studied the *visi-screen* with anxious eyes.

Brick let a long whistle escape through his lips.

"You're talking yourself into a spot, Ward," he said worriedly.

Ward didn't answer. He continued to study the screen and the silver ship that was flashing through the void thousands of miles ahead of their course. The silver ship was turning slightly on its diagonal course, swinging slowly off the *Astra's* orbit. In a few minutes its lateral direction would take it off the foreward *visi-screen* completely.

"It's not slowing down," Brick said quietly.

Ward nodded silently. The mysterious ship was disregarding his orders, that was evident.

The buzzer sounded from the radio compartment and Ward picked up the hose.

"Ship ahead refused to open communications, sir." The operator's voice was nervously tense. "I gave them two minutes to reply and then warned them we were ready to open fire."

"Repeat that message and give them two more minutes," Ward ordered. He dropped the hose and connected to the forward cannon turret.

"Central Control to Chief Cannoneer: Stand by to engage ship on lateral course."

"Right, sir!"

WARD wiped his palms nervously on the sides of his breeches.

Brick was regarding him anxiously.

"You can't open fire, Ward," he said. "It's against orders. You know we aren't supposed to open fire under any circumstances unless radio communication has been established."

"I'm running this ship," Ward snapped. "This may be my last command, but I'll be damned if I'll sit at a control bridge and let a stray ship thumb its nose at the authority of the Federation. I've given them a direct order and they've chosen to ignore it." He glanced at his watch. "They've had their two minutes. He signaled the gun turret. "Stand by to fire! Put two blasts over their bow and then wait instructions."

Brick grabbed his arm suddenly.

"Look!" he cried. He was pointing

at the silver ship on the screen. From its bow an orange-red flash had exploded. "They've beaten us to it," he shouted excitedly. "They're opening fire!"

Ward grabbed the communication hose and closed a switch that put him in contact with the ships' gun turrets.

"Central Control to cannon turrets: Assume battle stations. Fire when you're ready."

He switched to the central's pilot's compartment, where the *Astra's* course was plotted.

"We're going off course," he said crisply. "Bring the ship into position for attack broadsides."

The *Astra* swerved off its course and flashed toward the silver ship in a giant, arching sweep that brought its fore and rear cannon turrets to bear on the strange ship.

Ward felt a vicious sense of satisfaction course through him as he felt the *Astra's* electronic cannons open fire on the silver ship. There was no sensation of sound, for the cannon muzzles were beyond the sound-proofed walls of the ship; but at each rhythmic blast of the mighty weapons a faint shudder raced through the *Astra's* hull.

On the *visi-screen* they could trace the pin-streak path of the electronic charges as they flashed across the void in vast trajectories toward their target.

Brick shook his head as he watched the screen.

"We've got to do better," he muttered. "That broadside won't come within a hundred miles of the ship." He pounded a fist angrily on the chart table. "What the hell can you expect? The gunners haven't fired live ammunition for a couple of years! No wonder they're firing like blind men."

"They'll get a correction from that broadside," Ward said. "Their next should be closer."

SUDDENLY Ward felt the *Astra* lurch sickeningly and swing off its course. An alarm at his elbow jangled shrilly.

He snapped the communication hose to his lips and signaled for the rear power room. The rocket engineer's voice came tumbling into his ears.

"Reporting direct hit, sir. One propulsion tube knocked out completely. No casualties. Standing by for orders, sir."

"Do your best to repair damage," Ward said. "That's all."

The central plotting room signaled.

"Off course, sir. Losing speed. Standing by for orders, sir."

Ward glanced quickly at the *visi-screen*. The silver ship was diminishing rapidly on its surface. The *Astra's* speed had been cut in half and the silver ship would soon be out of sight, lost in the trackless expanses of the void.

Ward's shoulders slumped and his grey eyes were bleak as he spoke into the communication hose.

"Resume former course," he said dully. "Proceed at reduced speed. That is all."

The *Astra* swung slowly, heavily, back on its original course, Earth-bound. Ward gave automatic instructions to the other sections of the ship and then watched the *visi-screen* until the silver ship disappeared from its surface.

"Well," he said heavily, "that's that." He looked up at Brick and smiled ironically. "There'll be hell to pay for this, when we reach Earth."

CHAPTER II

A WEEK after Ward moored the *Astra* at a space base on Eastern seaboard of the United States he was notified to appear before a special ses-

sion of the Martial Court. The log in which he had recorded the action of the battle in space with the mysterious ship had been sent by his superiors to the court; and they were to render a verdict on the basis of his own record of the affair.

When he entered the high-ceilinged court room he was conscious of the atmosphere of charged tension. The room was crowded—officials, officers, statesmen and dozens of representatives of the various news disseminating agencies which supplied the entire world's thirst for information.

At one end of the long, heavily carpeted room sat five officers, members of the Court Martial. They were seated behind an elevated bench which gave them the commanding position of the entire room.

Ward walked slowly toward the bench. On both sides he heard fragmentary whispered comments. He was still wearing his uniform, but he realized that he might possibly be wearing it for the last time.

He stopped a dozen feet before the five officers, came to attention and saluted. The presiding officer, General Holmes, nodded impersonally to him and then cleared his throat impressively.

"Lieutenant Hanley," he said, "the purpose of this session of the Martial Court is to determine several factors in regard to your recent command of the *Astra* on its return to Earth from a routine observation flight."

Ward listened to the general's smooth, quiet voice with a feeling of utter hopelessness. General Holmes represented the most rabid forces of pacifism; his expressed opinion was that the entire military arm of the space force should have been abolished years ago. He maintained that any military organization was simply an incitation to violence. And that the only way of securing peace was to completely destroy all armaments. Ward reflected wryly that the general had forgotten the lesson that history should have taught him.

THE general glanced up from his papers and frowned at Ward. He was an impressive figure of a man, tall and proportionately built, with smooth, bland features with keen grey eyes under bushy dark eyebrows. His hair was iron-grey and swept back from his well-formed head like a splendid mane. Also, he realized that he looked impressive and he cultivated mannerisms to enhance the illusion.

"Lieutenant Hanley," he said slowly, "no one has preferred any charges against you." He paused and dropped his eyes to the papers before him. "But," he continued, after an impressive pause, "your own written record of your actions while in command of the *Astra* constitute a charge of the most serious nature. This court has carefully considered that record and has reached a verdict."

Ward felt himself stiffen. He forced an expressionless mask over his face. *They had already reached a verdict!* That could mean only one thing.

"However," the general continued, "before we announce our decision it is your privilege to make any statement which you feel might shed additional light on the matter."

Ward fought to check the mounting flood of helpless, bitter anger that was raging through him; they were ready to drum him out of the service without anyone speaking a word in his behalf. Well, to hell with the Federation!

"I have nothing to say," he said. He barely opened his taut lips to speak.

The general looked thoughtful.

"In that case . . ." he began.

"Pardon me, please, General Holmes," a suave, polite voice said. "May I speak to Lieutenant Hanley for a moment?"

The man who had spoken was seated at the end of the judicial bench. He was a dark, little man with the bars of a captain on his shoulder and the insignia of the Asiatic force on his sleeve. There was a bland smile on his round, inscrutable face as he leaned forward and regarded Ward with solemn, interested eyes.

"Why, certainly, Captain Hakari," General Holmes said. "You may ask the Lieutenant anything you like."

"Thank you, General," the captain murmured. He shifted slightly to face Ward directly. "My dear young man, I am afraid that you feel a great bitterness toward this court which has the unpleasant task of deciding the—er—discretion of your actions while commanding the *Astra*."

Ward smiled impassively.

"Very sharp of you to figure that out, Captain."

CAPTAIN HAKARI looked pained. His eyelids fluttered rapidly and he made deferential little gestures with his small, well-kept hands.

"I am sincerely sorry you feel as you do, but I realize that your reaction is only normal. Naturally you feel bitter and cynical, but if you would try to adopt a more cooperative attitude, you would be doing yourself a great favor."

"Just what do you want to know, Captain?" Ward said coldly.

"That is a little better," Captain Hakari murmured. He paused long enough to press his fingertips together slowly and carefully before asking his first question.

"This—ah—silver ship you saw, are you certain it carried no identifying insignia?"

"Absolutely," Ward said.

Captain Hakari nodded thoughtfully.

"And naturally that impressed you as peculiar, did it not?"

"Certainly," Ward said.

"You couldn't recognize its type from its silhouette?"

"I could not," said Ward. "And neither could anyone else. It was completely foreign to any merchant or service ship operating on our space lanes."

Captain Hakari smiled ruefully.

"That is, of course, a broad statement, Lieutenant, but," he paused again and pursed his lips, "at any rate it is not the important point. The important factor, Lieutenant, I regret to say, is the belligerent and savage attitude which prompted you to overstep your authority, disobey your orders and provoke an attack from what was, in all probability, a peaceful ship on a routine freight run."

Ward felt hot blood boiling up in his cheeks.

"If it was a peaceful ship," he snapped, "why didn't it stand by under my orders? Why did it deliberately disregard the instructions of a Federation ship and then open fire?"

"Let us not lose our tempers," Captain Hakari said gently. "Your attitude, Lieutenant, is typical of a certain class of Federation officers who expect to force their authority on everything with which they come in contact. The necessity for such an attitude no longer exists, Lieutenant. We are at peace, and the only way we can maintain that peace is to put an end to the armaments that are responsible for the bullying, bull-dozing attitude which had always been the identifying mark of certain types of authority-drunk officers."

"NOW just a minute," Ward snapped. "I didn't come here to listen to a lot of smooth, oily insults. If you're going to throw me out of the Federation, then do it. But let's get it over with."

General Holmes shook his head slowly.

"Most unfortunate attitude," he muttered. "Most unfortunate. I agree with Captain Hakari. Your attitude is that of a fighting savage. You must learn to be temperate, my boy."

Ward looked at the general with a feeling that was close to pity. The general was a fool. A hopeless, impossible fool.

Captain Hakari inclined his head slightly toward the general in a deferential gesture.

"Thank you," he murmured. "It is a great satisfaction to know that you concur with me, General."

"Since we agree," the general said, gazing directly at Ward, "it remains but for us to inform you of the opinion of this court." He picked up a sheet of paper from the desk, eyed it thoughtfully for a moment and then lifted his eyes to Ward. "Lieutenant Hanley," he said slowly, "it is the considered verdict of this court that you—"

There was a sudden commotion at the rear of the room. The general stopped speaking and glared in that direction, a frown settling over his features.

A young man had forced his way past the guard at the door, shoved aside several ranking officers and was striding toward the judicial bench. When he reached Ward's side he came to attention and saluted the officers of the court.

Ward glanced at him from the side of his eyes and his heart almost stopped beating.

"You fool!" he hissed under his breath. "Get the hell out of here."

Brick Masters' long, lumpy face twisted in a lop-sided grin. His red hair was sticking up in disordered tufts, but there was a determined glint in his normally mild eyes.

"Nuts to you," he murmured.

The general was leaning over the bench and his face was purple with inarticulate rage.

"What's the meaning of this intrusion?" he bellowed angrily.

"Lieutenant Masters reporting, sir," Brick said quietly. "I am here to confess that I was equally responsible along with Lieutenant Hanley for the command of the *Astra* on her last flight. I shared authority with him at Central Control and it was on my advice that we opened fire on the unidentified ship."

"Lieutenant Masters is attempting to make a noble gesture," Ward said evenly. He swung on Brick. "Get out of here, you simple fool," he said under his breath.

"LIEUTENANT HANLEY has been attempting to protect me." Brick ignored Ward's command and addressed his remarks directly to the general. "As a junior officer of the *Astra* I was as much responsible for her actions as Lieutenant Hanley."

"But I was in command," Ward protested. "I was senior officer in charge of Central Control and all decisions in regard to the handling of the *Astra* were made by me and no one else. I refuse to let Lieutenant Masters incriminate himself in a foolish gesture of mistaken and juvenile loyalty."

Captain Hakari leaned forward. His bland face wore an expression of polite interest.

"Lieutenant Hanley," he murmured, "you are not in any position to decide whether or not Lieutenant Masters' presence here is a gesture of loyalty, or whether it is actually the result of a

desire to confess his guilt."

"But he's not guilty of anything except obeying my orders," Ward cried desperately.

"Again I must remind you," Captain Hakari said gently, "that the court will decide the question of whether or not your friend is guilty. In my opinion," he said, turning slightly toward General Holmes, "Lieutenant Masters exhibits the same hostile attitude as our original defendant."

General Holmes cleared his throat and frowned over his papers at Brick.

"I think you are correct, Captain Hakari," he said. "Most unfortunate," he muttered, shaking his head, "most unfortunate."

The other officers on the bench moved closer to the general and Captain Hakari dominated the brief discussion that followed. When the general finally nodded his head solemnly and lifted his gaze to Ward and Brick, his face was serious. It was obvious that he had made up his mind.

"Lieutenants Hanley and Masters," he said, "it is the opinion of this court that you two officers shall be held equally guilty for the command of the *Astra*."

Ward glared disgustedly at Brick.

"I hope you're satisfied," he said bitterly.

Brick was grinning cheerfully. "You can bet your life I am," he said.

"Furthermore," General Holmes continued, "we feel that both of you should be liable for the same—er—punishment." He paused and frowned. "We do not feel that your actions were sufficiently culpable to force us to demand that you resign your commissions in the Federation service."

Ward listened with surprise to this statement. He had considered it a foregone conclusion that they would be mustered out of the service. What did the court martial have in mind?

"Instead of that we are offering you the opportunity to join a special Federation force which is barracked on an asteroid group—ah—a considerable distance from Earth."

"Precisely where?" Ward asked.

"Just a bit beyond Jupiter."

WARD glanced at Brick to see his reaction. The red head's mouth was hanging slightly open and his eyes were wide with astonishment. Ward felt the same way himself. Jupiter was the no man's land of solar space, never explored, never visited. It was a complete surprise to him that there was a Federation outpost in that bleak waste.

Captain Hakari, he noticed, was watching them with shrewd, appraising eyes. There was, Ward thought, an expression of triumph on his bland features as he saw the consternation that was stamped on their faces; and he suddenly realized that the Captain didn't want them to go to Jupiter. He wanted them to quit the Federation, resign their commissions.

A bitter stubborn anger coursed through Ward's veins. He didn't intend to be chased out of the service.

"I'll accept the general's proposal," he said stiffly.

He watched Hakari as he spoke and he saw, for a fleeting instant, a bitter expression of disappointment glide over the smooth brown features. But it was gone almost immediately.

"Allow me to congratulate you," he murmured. "But you understand the appointment to Jupiter is for five years?"

Ward felt the captain's words crash into his consciousness with an almost physical impact. *Five years!*

His face hardened into a granite mask. But there was something in him that wouldn't quit.

"Five years is all right," he said.

Captain Hakari's smile frosted at the edges.

"I hope you will enjoy them, Lieutenant," he said. He shifted his bland eyes to Brick. "And you, Lieutenant Masters, have you decided?"

"Why, sure," Brick said. He grinned sardonically at Hakari. "I think I'm going to like Jupiter. There's a lot of clean fresh air there that I'll appreciate after today."

Hakari's face whitened at Brick's thinly-veiled insult, but he forced a smile over his taut features.

"I hope you never regret your decision," he said.

"I have a hunch we won't," Brick said.

General Holmes coughed himself back into the conversation.

"Very well, you shall leave as soon as possible. You will fly a ship provided for your use by the space transport command. You will receive your clearance papers from them." He glanced down at the papers in his hand and then leaned back in his chair. "That seems to be all," he said quietly. "Court is dismissed."

CHAPTER III

SIX days later Ward sighted the Jupiter asteroid group in the fore *visiscreen* of the slim, two-seater ship that had been assigned to them by the transport command.

"Here we are," he said wearily to Brick. "Better give them a flash that we're coming in. I don't know whether they expect us or not."

"What a barren dump," Brick said bitterly. "Why the hell didn't we use our common sense and tell that smirking monkey, Haraki, what he could do with this job?"

Ward grinned, in spite of the feeling of despair that had been with him for the past week.

"It's your own fault, you carrot-topped dummy," he said. "You had to make a noble gesture and look where it landed you."

Brick grimaced and turned his attention to the communication set.

"There's something funny about this whole set-up," he said. "Hell, I didn't even know we had a garrison here until the general mentioned it. And did you notice how anxious Hakari seemed to be for us to tell the general to go jump in the lake?"

Ward nodded.

"That's the main reason I didn't," he said.

A few minutes later the radio came alive, acknowledging Brick's call and giving them directions for mooring. Ward made the necessary adjustments on the instrument panel and set the ignition timing device for the fore repulsion blasts.

The asteroid toward which they were speeding grew swiftly larger in the *visiscreen* until they could make out the jutting prominence of a dual mooring tower and beneath it several rows of tiny barracks.

"Here we go," Ward said. "I hope they've got the welcome mat out."

He slanted down toward the tower and cut in the repulsion blasts. The ship shrieked as it cut through the asteroid's atmosphere and then shuddered slightly as its blazing speed was checked by the blasting jars of the fore rockets . . .

WARD climbed out of the ship and looked around. There were several men standing in front of the row of barracks glancing up at the ship which had just moored. Off to one side there was a wide metal-sheathed hangar with a half-dozen small ships in front

of it, their noses set in submerged blasting towers.

In front of the rows of barracks there was a larger building that was apparently headquarters.

Brick climbed out beside him on the mooring ramp and took a deep, slow breath. He looked out to the horizon where the monstrous bulk of Jupiter loomed darkly. The air was oppressive and heavy and they were both uncomfortably warm in their bulky space suits.

"Let's go down," Ward said.

"A hell of a place to spend five years," Brick grumbled.

They descended to the ground in the pneumatic elatube that was built into the mooring tower. When they stepped out of the car a middle-aged man in dark coveralls strolled over from the barracks.

"The captain's waiting to see you," he said. He waved toward the large building set apart from the barracks. "Right in there."

He turned his back then and walked away.

Brick stared after him with a cynical grin.

"Cheerful guy," he muttered.

"Come on," Ward said, striding across the hard, flaky soil, "let's report to the captain."

The front door of the large building was open and they walked in. A tall, dark-haired man with lean, pale features and shadowy eyes was seated at a desk in a corner of the room, studying a sheaf of papers. A cigarette was burning in his long, yellow-stained fingers and a half-emptied bottle and a small glass stood at his elbow.

Ward cleared his throat slightly and the man looked up and smiled cynically.

"Welcome to Asteroid Base," he said. "I presume you are Lieutenants Masters and Hanley."

"That's right, sir," Ward said.

"You can forget the 'sir,' " the man at the desk said. He poured himself a drink and leaned back in his chair. His pale, thin face was sardonically amused and there were mocking lights in the depths of his dark, proud eyes.

"WE DON'T stand on rank here," he said. "In fact, it is non-existent. But I give the orders. And my first order to you is this: get out of your uniforms as fast as possible and forget that you ever belonged to the Federation. Is that clear?"

"It's clear enough, but I don't understand why," Ward said.

"Don't trouble yourself about it." The man at the desk stood up and tossed off his drink. He was several inches taller than Ward and his stooped shoulders and long arms accentuated his height. "Nothing is worth worrying about, gentlemen. That is my only advice to you as commander of Asteroid Base. We here are outcasts, pariahs. Earth doesn't want us because we are essentially fighting men. You men, I presume, were sent here because you wanted to fight. If you don't you won't last very long." He eyed them quizzically. "What did you train for in the service?"

"Gunnery," answered Brick.

"Single ship combat," Ward said.

"Were you any good?" their commander asked bluntly.

"I think I was," Ward said.

"Permit me to doubt that, until I see you in action." The dark eyes of the commander burned contemptuously. "The Federation hasn't produced a decent combat fighter for ten years. How can they?" he said bitterly, "when they train them in classrooms instead of in actual combat in space?" He paused long enough to pour himself another drink. "You'll get training here," he

continued. "All you can stand. We don't coddle anyone on Asteroid Base. I hope for your sakes that you can take it. Otherwise it won't be pleasant for you."

"We'll take it," Ward said. He was developing an acute dislike for this bitter, sarcastic commander. "And," he added, "if I'm going to get lessons in space combat tactics, perhaps I'll be fortunate enough to receive them from you."

The commander didn't miss the sarcasm in Ward's voice. He smiled thoughtfully and eyed the glass in his hand.

"I think that can be arranged," he said. His voice was suddenly crisp. "Get a good night's rest, Hanley. I'll start your training myself tomorrow morning."

"It will be a pleasure," Ward said.

"Don't count on that," the commander said, smiling cryptically.

WARD was checking the ship assigned to him the following morning when the commander came up beside him, smiling quizzically. The inevitable cigarette hung from his thin lips and in the light he looked even more pale and dissipated than he had the previous day.

"Everything all right?" he asked.

"Seems to be," Ward said.

"Good. Go up when you're ready. Wait for me at six hundred miles above here. I'll try not to keep you waiting."

"How do we score?" Ward asked.

The commander smiled.

"Simple. We fire to singe our opponent's ship. An atomic blast leaves a definite mark on the metal surface of a ship. The ship with the least atomic burns after fifteen minutes of fighting is the winner."

Ward stared at the commander incredulously.

"But how can you be sure of not scoring a damaging hit?"

The commander flicked away his cigarette.

"You can't," he said. "But a good eye and steady hands help a lot." He strolled away.

Brick came up as Ward was climbing into his suit.

"I don't like this business," he said. "That guy's got it in for you, for some reason. He's liable to blow you into kingdom come, just for the hell of it."

"I'll have something to say about that," Ward said briefly.

"I don't like this place," Brick growled. "Everybody seems to be walking around with a chip on his shoulder." He glared disgustedly at a group of silent men who were standing in front of the barracks, watching Ward's preparation for blasting off.

"I'm goin' to knock some of those chips off and then start on heads," Brick said grimly.

"Take it easy," Ward said. "Maybe they don't thaw out very easily. So long."

"If anything happens to you up there," Brick growled, "I'll knock that gangling skunk into a dozen pieces."

"Nothing's going to happen," Ward said.

He climbed into his ship and slammed the hermetically sealing doors. After a rapid check of his instruments he signalled to the ground crew for clearance. He felt his ship tremble slightly as he cut in the rear rockets. A second later the blast from the mooring tower reverberated in his ears and his ship roared upward, splitting the atmosphere with a whistling shriek.

Ward leveled at six hundred miles and tested the eight cannons with which the ship was armed. He put the ship through half dozen fast maneuvers to get its feel and then he leveled out

again. The ship responded perfectly to his touch and the cannons were ready to belch electronic blasts thousands of miles across the void at the lightest touch of his hand.

He smiled faintly and circled over the asteroid, which was but a dim blur in the *visi-screen* on the floor. Perhaps the commander might be in for a slight surprise.

Several minutes passed before he saw the flashing streak of the commander's ship break the muggy film of the asteroid's atmosphere and roar void-ward.

WARD circled slowly. He was in an extremely favorable position. He had altitude and his ship's rockets were warm. The commander shot a signal rocket from the tail of his ship as a signal to Ward that he was ready.

Ward smiled thinly. The commander was mighty sure of himself. He was signalling Ward to go ahead while he was still flashing upward, while he was completely vulnerable to a dive attack from Ward's ship. He was either very confident or very careless.

In either case Ward decided to teach him a lesson. He tightened his circle and broke suddenly into a screaming dive, throwing all of his rocket power behind the maneuver.

According to all the accepted rules of space combat that he had learned, the move should have caught the commander's ship squarely in the firing angles of his fore and port guns; but something went wrong.

At the exact instant that Ward's finger was tightening on the trigger that operated the automatically synchronized central fire control, the commander's ship suddenly stopped its upward rush. For a fractional second it hung motionless, then, with a roaring burst of power it swerved to the right and was gone.

Ward swung his ship about to follow, cursing himself for missing such a perfect opportunity. The commander had shaken him by firing a repulsion blast and checking his ship, momentarily ruining Ward's fire.

Ward closed with the commander for the second time with considerably more caution. He followed the commander's circling ship for several seconds, gradually cutting down the distance between them. When he was almost within accurate firing range he shoved the throttle forward and flashed ahead. He couldn't take any chances on his shots. He had to be in perfect range before he could fire with sufficient accuracy to sear the commander's ship. Any mistakes with that type of firing could easily be fatal.

His burst of speed brought the commander into perfect focus and with a tight smile on his lips, Ward released the full blasts of his fore and port electronic cannons. He saw their fiery course traced across the black surface of the *visi-screen;* and the apex of their converging lines was the commander's ship!

Suddenly he saw orange blasts exploding from the sides of the commander's ship. The blasts were not aimed at him. They flashed away into the void thousands of miles from Ward's ship, but as he watched the apparently pointless waste of firing power, he saw that his own charges which he had considered perfectly aimed were flashing wide of the mark. Not by much. They would be considered near hits and an instructor would have rated him highly on his accuracy, but they still didn't touch their objective.

DISAPPOINTED, Ward built up power in his rear rockets and released in one reckless, savage burst. Under the impetus of the tremendous

discharge of energy his ship flashed ahead with light-like speed.

Ward was determined to close with the commander. His jaw was set in a hard line and the knuckles of the hand were showing white as he gripped the controls.

He roared down on the idly circling ship of his opponent taking advantage of his tremendous speed to come in above him where every advantage would be on his side. That instant he was completely in command of the combat, he was in a perfect attack position, he had superior speed and his gunnery indicators showed the commander's ship squarely in dead center firing angle; but before he could squeeze the trigger the commander's ship whipped around in an incredibly tight climbing turn that took it completely out of Ward's range.

And the next instant the position of the two ships was suddenly reversed. Somehow, Ward never knew quite how, the commander's ship stalled in its climbing turn and came over backward putting it directly on his tail, only three miles above him.

He saw in the mirror that reflected the rear *visi-screen* the commander's ship diving on him, looming terrifyingly larger with every beat of his heart.

He tried desperately to maneuver out of the position, but the commander's ship stuck to his tail as if it were glued there. Ward tried every tactic he had learned, but the commander seemed to anticipate his intention and before Ward could complete the maneuver he would see that it was unavailing.

But the commander did not open fire, although he was at point blank range. He contented himself with following Ward's frantic maneuvering.

Ward felt a sensation of exhausted helplessness creeping over him. The man wasn't human! He knew what Ward was going to do before Ward knew it himself.

For the next five minutes Ward hurled the ship about a hundred square miles of the void without regard to his own safety. He dove with all rockets blasting a tortured roar of straining power and he made impossible recoveries that threatened to snap the hull of his slim ship in two.

But nothing he could do shook the nemesis from his tail. The commander followed him through every maneuver, diving even more recklessly and pulling out at even sharper angles to close the ever-narrowing gap between the two ships.

Ward felt perspiration trickling down his sides and his face was strained and white. His entire body was taut as tightly strung wire and his nerves were screaming from the terrible pressure of the desperate, hopeless effort he was making to escape the commander's ship.

If he could only dislodge him for an instant! Shake him loose for just one turn, he would be satisfied. He would prove to himself that it could be done; that the commander could be caught napping. But it was impossible. The more he fought, the harder he forced his straining ship, the slimmer grew the distance between the two ships.

"Damn him!" Ward raged desperately. "Damn his smug sneering soul to hell!"

HE swung the ship about in a wild frantic turn and when it failed to shake off the pursuing ship, he knew he was licked. His shoulders felt as if they were supporting thousand pound weights and his eyeballs ached with a terrible burning fire. He was exhausted, physically and mentally. And he felt a humiliation that was more galling, more piercing than anything he had ever known in his life.

He set the controls at neutral and slumped back in his seat. This was what the commander obviously wanted, complete and humiliating admission that it was a hopeless fight. Well, he had it. There was no point in fighting any longer. Ward watched the rear *visi-screen*, waiting for the commander's next move.

And it was not long in coming!

The commander's ship suddenly pointed toward him in a dive and Ward saw orange blasts explode from the three fore electronic cannons.

That galvanized him into action again. He threw on all power, even though he knew it was impossible to escape the blasts streaking toward him. Before the rear rockets could hurl his ship away he heard a shrieking wail in his ears; and he knew the commander's blasts had seared the metallic sides of his ship.

He felt a cold sweat of terror breaking on his forehead; and he cursed himself for it. But he couldn't help it. He knew how horribly close those blasts had been. If the commander's aim had been off a fraction they would have transformed his ship to a drifting cinder.

The thought of what would have happened to him then was unnerving. He maneuvered his ship frantically and kept his eyes glued on the commander's ship on the *visi-screen*. But he couldn't shake him and when the next blasts came he was again caught squarely.

THE shrieking searing impact of the electronic blasts was like a banshee wail in his ears; and before it had stopped echoing in his aching head he saw the commander's ship slip off his tail and roar underneath him in a fast dive, raking his vulnerable belly with a series of deadly blasts.

Deadly, that is, had they been direct hits. But they only grazed the sides of his ship's belly and ricocheted harmlessly into space.

Ward realized foggily that he was clear of the commander's ship. The diving momentum of his ship had taken it off Ward's tail. He watched as the commander recovered in a slow climb and came back to his level.

A signal light burst from his tail and Ward knew with a sick sense of relief that the combat was over. The commander's ship turned and disappeared in a spectacular power dive toward Asteroid Base.

Ward followed more slowly. His nerves were strained to the snapping point. He knew he had been beaten badly. There had been no redeeming factor in his handling of the ship. The commander had out-maneuvered, out-thought, out-fired and out-flown him in as decisive a theoretical defeat as one space pilot could achieve over another. Ward knew that had the commander wished, he could have blasted him in the first ten seconds of the encounter.

But in spite of the humiliating beating he felt a grim, hard determination welling in him. He was not going to quit! He'd learn space combat tactics if he had to spend a life-time doing so.

If the commander thought that one defeat was going to stop him he had another think coming. . . .

WHEN Ward stepped out of the elatube car at the base of the mooring tower, the commander was waiting for him, the inevitable cigarette in his mouth and a sardonic smile hovering at the edges of his thin lips.

He glanced up the two hundred feet elevation of the mooring tower where Ward's ship, electronic burns gleaming like welts on its surface, was moored.

Ward flushed and forced bitter words through his lips.

"You made a fool out of me," he said.

"Naturally," the commander said idly. "You handle a ship in combat like a child." He studied the tip of his cigarette with amused glints touching his cavernous eyes. "But," he added negligently, "you'll do all right with a little practice."

Ward had trouble believing that he had heard correctly.

"I don't need any sympathetic pats on the back," he said stiffly. "I know I was terrible and you do too."

"Yes, of course," the commander said. "You were terrible, but only by comparison." He flipped his cigarette away and watched it fall in an arc to the ground. A smile touched his lean white face as he studied Ward pensively. "You'll do all right," he said again. "You handle your ship fairly well, but you aren't decisive enough. In void combat everything goes to the man who makes his play with everything he's got. When you dive, dive! When you turn try and bend the nose of the ship around to touch the tail. And when you fire," he smiled grimly and put another cigarette in his mouth, "try and fire as I do."

"Is that the standard of perfection?" Ward asked and he couldn't keep the sarcasm completely from his voice.

The commander puffed idly on his cigarette and his white, knife-thin features were solemnly thoughtful.

"Yes," he said finally, as if he had made up his mind after considerable deliberation, "I should say it is."

Ward felt that he had never encountered such monumental conceit; but he was forced to swallow the fact that it was almost completely justified.

"I'll try," he said.

"Good," the commander said laconically. "And by the way," he added, as he started to turn away. "I forgot to introduce myself yesterday. Slater's the name. Captain Slater when I was with the Federation."

"Captain Slater!" Ward repeated dazedly. He felt as if the wind had been knocked from his lungs. "Captain Slater," he said again, and his voice was a mere whisper.

CAPTAIN SLATER! The greatest combat fighter ever to wear the Federation's uniform. Living legend, hero of a thousand stories told and retold in space bases from Mars to Venus. Ward felt a shuddering sense of relief, even in his astonishment. Losing to Captain Slater in combat tactics was nothing to be ashamed of. He remembered hearing of one occasion when the Captain had blasted fourteen freebooters' ships from the sky by himself, in an exploit that had sent his name to the executive commander's desk where he had been awarded the highest medals of the Federation accompanied by a citation that was practically lyrical.

"Well, what're you staring at?" Captain Slater asked with cynical amusement.

"I'm sorry, sir," Ward said, "but this is quite a shock."

"That bad, eh?" Captain Slater murmured, raising one eyebrow quizzically.

"I didn't mean that," Ward said hastily. "But I understood that—" He paused, floundering. "I heard some story that you had resigned your commission in the Federation and it's a start to realize that you're here, commanding a Federation unit."

Captain Slater studied him for an instant through the curling smoke of his cigarette.

"Come with me," he finally said abruptly. "There are a few points on which you need clarification."

He turned on his heel and strode toward his office.

CAPTAIN SLATER seated himself at his desk and waved Ward to a chair facing him. He poured himself a stiff drink and set the bottle at his elbow.

"Hanley," he said, "I'm going to be blunt. We men here are not Federation officers. The Federation chose to kick us out for our opinions, so we don't owe it any loyalty. We are an independent unit, subject to no authority other than that which is self-imposed. You are in the same spot as the rest of us. You—"

"Just a minute," Ward said. "I still hold a commission in the Federation."

"That is what I thought when they offered me this post," Captain Slater said bitterly. "What happened to me has happened to you and your friend, Brick Masters. You were offered a choice. Jupiter asteroid group or resignation, right?"

"Why, yes," Ward said.

"So far, so good," Captain Slater said. "You accepted an appointment here for five years. If you leave before that time you are a deserter and the Federation will shoot you on sight. But the ironic thing is that you are no more a Federation officer today than I am. I was offered the same deal you got and I decided as you did. But after I left for this hole the court martial quietly tore up my papers and commission, circulated the story that I had changed my mind and had left the service. The same procedure will follow in your case. Don't you understand? They don't want us on Earth. They've washed their hands of us, condemned us to this hell-hole to live like outcasts because we had the courage to disagree with the stupidity of Earth's present pacifist policy."

Captain Slater's thin face was burning with an ugly anger as he finished speaking. He tossed off his drink and stood up, glowering down at Ward.

"What the hell do we owe them?" he said, and his voice was like a breaking lash. "We're free agents. Two hundred fighting men and sixty fighting ships ready to go to the highest bidder. That's all we can be, all we'll ever be."

"But supposing Earth should need us?" Ward asked.

Captain Slater laughed bitterly. "They won't need us," he said mockingly.

"Can't they communicate with us?" Ward asked.

"They can, but they won't. And why should they?" Captain Slater asked ironically. "They know all there is to know about everything and they don't need us to tell them their business." He waved a hand toward a covered void-wireless in a corner of the room. "That's been there for two years and Earth hasn't called for help yet. And she never will. Think it over, Hanley."

He sat down again abruptly.

"Get back to work," he said curtly. "You're going to be a combat fighter if I have to burn you to a cinder in the process."

WARD left the captain's office with queerly mixed feelings. He felt stunned, his mind was numb from the impact of the captain's information. He was a man without a country, but the fact his land had disowned him made it additionally worse. He found Brick and related to him the captain's story.

"Well," Brick shrugged, when Ward finished, "what're you going to do?"

"There's nothing we can do," Ward said. "We've got to go along here, learning what they can teach us. They seem a helluva lot more advanced than any of the Federation forces on Earth."

"Amen to that," Brick said fervently. "I've been working this morning with a gunner who could hit the moon, dead-center, from Earth with a pea-shooter!"

THREE months passed. Three months in which Brick and Ward worked desperately hard and learned more than they had in their previous three years with the Federation. The attitude of the men at Asteroid Base gradually thawed and as Ward came to know them, he discovered that they were tinged with the same feeling of hopeless, bitter cynicism as was the captain. They felt that they had been renounced, betrayed by their own land, and that consequently they owed no allegiance to anyone or anything but themselves. They were ready to fight, and they were magnificently equipped to fight, but they felt they should fight only for themselves, for their own gain, their own glory.

And Ward was gradually coming to share that same viewpoint. He had been ill-treated, practically kicked off Earth and exiled to this barren hell-hole. And his natural reaction was one of bitterness and resentment. Paradoxically, he still thought of himself as a Federation officer, but he knew, logically and coldly, that he owed Earth nothing.

One afternoon after the completion of a training flight he headed for the captain's office to report. As he walked in the door he saw Captain Slater bent over the void-wireless, a tense flushed look on his face.

The void-wireless was spitting a message from the transmitter, and Ward caught only the last section of it. But he recognized the signal that followed the message. It was a signal that he had memorized in classrooms, but which he had never heard on a ship's communication system.

For the signal crackling in regular intervals from the transmitter, was the universal distress of Earth!

Ward stared in amazement.

"What the hell's happening?" he demanded.

"It seems," Captain Slater said lazily, as he moved to his desk and picked up the bottle, "that Earth is expecting a bit of trouble. They have spotted a space formation of alien ships at a rendezvous just beyond Heaviside, on a forty degree beam from the eastern seaboard of the United States."

"Where are their interceptors?" Ward demanded.

"Well," Captain Slater said with a sardonic grin, "they're having their trouble on Earth too. A revolution has started, saboteurs have destroyed practically the entire interceptor space force. The uprising is led by an Asiatic, Captain Hakari. Interesting situation, isn't it?"

"Well, what are we waiting for?" Ward said excitedly. "We've got ships and fighting men. Possibly we can get to the rendezvous before the alien space formation attacks. Then—"

"Just a minute," Captain Slater said quietly. "We are not going anywhere, Hanley."

"But, Earth—"

"EARTH is no concern of ours," Captain Slater said grimly. "What would we profit by smashing this force of ours in a futile attempt to save Earth from the results of her own folly? I didn't build this force to throw it away foolishly. Lawlessness is coming to the void again. We here knew it was coming, but our opinion was disregarded. This time someone else can take care of law and order and I'll take the spoils. Why in five years of free-booting, do you realize we'll be kings? We'll have money, power—"

"What's wrong with you?" Ward yelled. He gripped the edge of the desk and leaned forward until his face was

only a foot from Slater's. "How can you talk about money when Earth, your own planet, is in danger and needs every fighting man it can muster?"

"That is no concern of mine," Captain Slater said calmly.

"Well it is of mine!" Ward snapped. "I'm heading back for Earth."

"I beg to differ with you," Captain Slater murmured sarcastically. He drew a gun from his desk drawer and pointed it at Ward's stomach. "You're going to stay right here on Asteroid Base, Hanley."

Ward stared at the gun for a moment.

"You can shoot me in the back if you like," he said and walked toward the door. His shoulder muscles were tensing instinctively for the impact of a bullet as he stepped out of the office and headed for the mooring tower at a dead run. He met Brick at the base of the tower.

"Come on," he snapped, "we're blasting off for Earth."

"What the hell's up?" Brick asked.

"I'll tell you on the way," Ward answered.

As he clambered into the tiny two-seater ship and reached out to slam the door he saw Captain Slater's lean form in the doorway of the office watching him with one hand shading his eyes. The other hand was thrust negligently in his pocket and every line of his pose suggested the cynical mockery which Ward knew would be gleaming in his dark eyes.

He slammed the door and snapped on the firing switches.

A few seconds later the ship blasted out of its socket and screamed through the atmosphere, Earth-bound. . . .

CHAPTER IV

THE trip from Earth to the Jupiter asteroid group had taken Ward and Brick two days; the return trip was made in a fourth of that time. From the moment they left the asteroid base Ward had savagely gunned the ship until every rocket chamber was shrieking protestingly, and the firing detonators were heating dangerously.

Nine hours after they left the asteroid base Ward sighted the alien space formation in the fore *visi-screen*. He immediately cut the speed of his ship and swung up in a steep climb.

The ships that were visible in the *visi-screen* were all of a solid silver color, completely devoid of identifying insignia. They were exactly like the ship with which they had exchanged electronic blasts on the *Astra's* Earth-bound flight months previous.

"That ship we fired at must have been a long-range scouter," Brick said. "Probably sneaking in for reconnaissance information."

Ward was grimly studying the formation of ships on the *visi-screen*. They were lined in three triangular columns, apparently waiting for a signal to attack.

"About two hundred," Ward estimated quickly.

"What'll we do?" Brick asked.

Before Ward could answer the formation of alien ships began to move and, one by one, the ships peeled off in slow dives toward Earth.

"There's only one thing we can do," Ward said. He looked at Brick steadily. "We can delay them for a few minutes anyway."

Brick grinned.

"A few minutes is better than nothing. Let's go."

Ward threw the idling rockets into full power and dove straight for the densest section of the enemy formation. The silver ships grew larger on the screen at an alarming rate; and then orange puffs suddenly began to mush-

room from their gleaming sides.

"They've spotted us," Ward snapped.

"They're off the range," Brick said. "Keep going."

He moved to the small cowled gun turret and took a quick finding with the firing panel. As Ward sent their ship flashing under the belly of the first ship in formation Brick fired a broadside that burned it to nothingness in a twinkling second.

"Number one!" he yelled.

"Number two isn't going to be so easy," Ward said grimly.

He maneuvered his ship desperately to avoid a cross-fire and Brick snapped out another blast that missed its mark by a fraction.

That miss made their position impossible. Three ships converged on them, lining them up for a destructive cross-fire blast that would burn them from the void in a split-second.

Ward put every atom of his new training and skill behind the manipulation of the ship, but it was a hopeless situation. They had him dead and were taking their time to make absolutely sure they didn't miss fire.

Brick suddenly grabbed Ward's arm and pointed excitedly to the *visi-screen*.

"Look" he yelled

WARD flashed a quick glance at the *visi-screen* and saw a formation of fifty fighters streaking toward them. And in the lead was the slim crimson ship of Captain Slater.

"It's the Asteroid Base fleet!" Brick yelled, pounding Ward on the shoulder.

"I knew Slater would come," Ward said.

The appearance of the formidable fighter group had distracted two of the ships which had been pocketing Ward's ship. When they swung away he was able to climb into the clear. From a height of several miles Ward and Brick watched the onslaught of the fighter squadron led by Captain Slater's crimson ship on the milling, disorganized formation of the silver ships.

Ward took his eyes off the battle long enough to open the communications channels to Earth

"Fighter ship, Asteroid Base squadron calling Earth." He sent the message twice before he got an answer. The Earth operator's voice was tense with excitement.

"Earth calling fighting ship. We have things under control here, but cannot handle invasion from space. The formation of enemy ships on beam 40 outside Heaviside is from Sirius. Can you give us information on when they may launch attack? That is all. Please come in."

"Calling Earth. Don't worry about the silver raiders from Sirius. A fleet from Asteroid Base under the command of Captain Slater has things pretty well in hand."

Ward snapped off the radio and headed the ship back down for the vast space battle raging over a thousand square miles of the void.

But even at that early stage the superiority of the Earth was becoming obvious. And Captain Slater's crimson ship was like a grim harbinger of vengeance as it flashed repeatedly into the densest formations of the Sirius raiders and left smoking ruin in its wake.

Brick and Ward got one more ship before the bulk of the silver squadron broke and streaked away from Earth.

The crimson ship of Captain Slater stayed on the trail of the Sirius raiders as they headed for the vast reaches of outer space. His ship closed on the stragglers like a hungry shark. But as the formation of silver ships was vanishing into pin-points in infinity Ward saw something that brought a choking lump to his throat.

A desperate blast from a silver ship had caught Captain Slater's ship in a direct hit; and it vanished into cinders in the void. His own cool recklessness had worked against him. The ship that got him was one that he passed with his blinding speed and grim anxiety to close with the bulk of the formation, where the spoils would be richest. A blast from behind had done what no ship had ever been able to do from the front.

Ward swung their ship wearily toward Earth. The raiders from Sirius might come again, but Earth would be prepared for them.

And he realized that Captain Slater and the men of Asteroid Base who had died in the void today, had not died in vain. Their insistence on the ideal of preparedness would bear fruit now and Earth would always be richer for having had such men in its hour of desperate need.

CARBON-COPY KILLER

(Continued from page 31)

say might be disclosed, Marion made no attempt to interfere.

She felt fairly certain that she knew the answer to the riddle of Drew's death. Munro Miller, for some dark reason of his own, had wanted the trustee done away with. By drugging Alice Bailey, then making her a slave to his will by means of submitting her to some type of electrical impulses from the squat black machine, he had sent her out to kill. How he was able to sever that control, leaving no memory in the mind of his human puppet, was something yet to be determined.

WITH the three wires in place, connecting Paula Lane with the machine, Miller ran a heavy cable from the same gadget to a long, narrow coffin-like metal box standing on a bench a few feet away from where lay his insensible victim. Muttering softly to himself, the professor reached into the coverless box, then brought out his hand and let its contents sift through his fingers.

Marion set her teeth tightly into her lower lip to keep back a gasp of complete astonishment.

Falling from between those fingers was a trickle of finely powdered carbon!

Suddenly her neatly tied together solution began to come open at the ends. There was no place in it for the constantly recurring presence of powdered carbon!

In utter bewilderment, now, she watched the evilly grinning professor come back to the unconscious form of Paula Lane, seat himself on a low stool beside the bench-like support on which she rested, and take a pamphlet from the drawer of a small table beside the bench. This he consulted for several minutes, his thick lips moving as he repeated in an inaudible monotone the words he was reading.

At last, apparently satisfied, he stood up again, and withdrew a rubber-framed square of thin, silver-coated glass from a shelf under the bench. Two trailing, insulated wires were attached to the two-foot square, one of which was connected to the squat, black machine; the other was fastened to a metal terminal of the gleaming chrome band about the girl's forehead.

His muttered words became louder as his strange labors came nearer the point of culmination.

"Sleep well, my dear! There will be no pain; no memory, a few hours from

now, of what you have experienced here. And when the police come for you tomorrow, you won't understand, will you, my dear? But you *will* be shocked when they accuse you of murder—the murder of Marion Trent!"

The girl behind the packing case could hardly credit her ears with having heard correctly. Why should Munro Miller want to have her murdered? Was it because he believed his former student was getting too close to the truth behind Drew Massey's death?

Her hand tightened about the gun beside her, and she shifted her position just enough to observe more clearly what was taking place.

The professor was holding the glass plate by either side and directly above the feet of Paula Lane's limp, still form. For almost a full minute he stood thus, raising and lowering the plate as though gauging the proper distance it must be held—for some unknown reason—from the softly curved feminine body.

At last, apparently satisfied, he touched a small switch set in the hard rubber edge of the plate. Instantly the squat machine, nearby, set up a subdued humming sound.

A peculiar luminescence shot from the underpart of the glass square and descended to bathe the sleeping girl. Slowly, with infinite care, the stunted man began to move the glowing object toward the head of the girl, while its weird light continued to wash over every inch of her body.

"Steady, my dear; steady," murmured Miller, although Paula Lane showed no signs of returning consciousness. "Soon, very soon I shall have finished . . . Ahhh!"

WITH that last sharply uttered sigh of satisfaction, he snapped off the switch, the pale radiance died slowly away and the machine's humming note faded to silence.

Replacing the plate hurriedly on its shelf, Miller went quickly to the long box-like affair containing the carbon and peered within.

"Perfect!" he said aloud; "absolutely perfect!"

Marion Trent, her heart pounding with mingled astonishment and curiosity, watched Miller turn and cross to one corner of the room, then return, wheeling ahead of him an intricate mechanism, consisting largely of what appeared to be giant cathode-ray tubes, and mounted on a wheeled base.

From this strange contrivance swung an arm-like tube, with down-pointed nozzle. This, Miller moved into position over one end of the carbon-filled box. With a last, searching glance, as though to assure himself that everything was in place, he reached for a heavy switch mounted at one end of the machine.

Marion Trent could contain her curiosity no longer. Hoping that Miller's intense concentration on his task would keep his eyes from her direction, she straightened to her full height and stared into the open metal chest.

An involuntary cry of complete disbelief escaped her. No longer did that coffin-like receptacle contain a mound of powdered carbon. Instead, it held the completely nude figure of a beautiful young woman!

It was Paula Lane!

Yet Paula Lane still lay in a drugged state on the same table she had occupied since Miller had brought her here!

At Marion's startled cry, the professor had whirled about to face her, fear and rage twisting his oddly youthful features.

"Miss Trent," he snarled, in instant recognition, "what are you doing here?"

His words jerked Marion from her trance-like state of bewilderment, and the misshapen gun in her hand came up to cover him. Coldly intense rage flooded through her, then, steadying her hand and leaving her mind crystal-clear.

"So this is how you killed Drew Massey," she said quietly. "Through your work with carbon, you have discovered how to duplicate any living person you wish. It's not so surprising, at that, since carbon is one of the basic elements of all living structures." *

Professor Munro Miller took a slow, casual step toward her.

"My dear young lady," he said. "What in the world are you talking about?"

THE gun in Marion's hand came up in a gesture that stopped the man in his tracks.

"You know what I'm talking about, Professor Miller!" she blazed. "You drugged Alice Bailey by putting a carafe of doped water in her office. While she was unconscious, you brought her here, made an exact image of her from carbon—so exact that hair, fingerprints, footprints: everything was the duplicate of her own.

"Then, with that image in some way under your complete control, you sent it out to kill Drew Massey. Under your command it left strands of its hair, the prints of its fingers and shoes, where the police would be certain to discover them.

"When the crime had been accomplished, you summoned back the flesh and blood robot you had created; then put Alice Bailey, with no memory of what had taken place, out on the street to return to her home.

"It was perfect, Professor Miller—perhaps the most perfect crime ever committed. But you overlooked one thing—something you had not taken into consideration.

"You did not know that the carbon content of your robot was so great that it impregnated her skin and her hair, and that every fingerprint it left, every hair placed in the dead man's hand, would leave a film of that same carbon!

"And you went to such pains, Professor, to make everything fit! You dressed your manufactured monster in clothing taken from the real Alice Bailey's closet at her office. By whatever means of remote control you used, you directed your human-appearing creation into acts that would lead several people into identifying the true Alice Bailey as the one who was at Drew's home when he was killed And when it all was over, you put fresh water in the decanter in that office. No smallest detail was forgotten!"

"Please!" Munro Miller was smiling—a pitying, sympathetic smile. "All you have said is interesting—and a little mad! You've forgotten one thing, Miss Trent; a very important thing."

The anger in Marion Trent's eyes did not change.

"What do you mean?"

"The image, as you term it, *is not alive!*"

* The exact process used by Professor Munro is perhaps startling, at first glance, but when the method is examined, the logic of it is staggering The possibilities of a sort of "carbon-cast" duplication of life in the future can grow swiftly under scientific experimental effort. The process used by Professor Munro is an adaptation of the "scanning" ray process used to transmit pictures by radio. Just as a picture is reproduced at the receiving end in a series of lines which lie closely packed in the same plane, this machine of the professor's genius scans the body in all its details by means of an x-ray, duplicating every cell in its entirety in a carbon simulation. As the scanner passed over Paula's body, the carbon particles in the cabinet were arranged into an exact duplication of her body down to the last particle. However, even so, the carbon-copy body was without life, being no more, literally, than a cast in carbon.—Ed.

The girl hesitated. Then, the gun in her hand still pointed at the little man, she warily approached the chest containing the carbon-copy of Alice Bailey.

Eyes still intent on Miller's relaxed, confident features, she reached out and placed her left hand on one arm of the nude figure.

It was as cold and as solid as marble.

SHEER amazement pulled her gaze down to that motionless duplicate of Paula Lane. And at that same instant, Munro Miller acted!

A powerful hand closed about the wrist of Marion's right hand. Before she could fully comprehend what was taking place, the gun was wrenched from her fingers and a heavy blow sent her staggering back, saved from falling only by the tube-covered table behind her.

"And now I'll do the talking, Miss Trent!" he said in shrill t r i u m p h. "Yes, I was responsible for the death of Drew Massey. I had him killed because he, as trustee of the university was threatening to cut off my use of school funds in financing my experiments. Visionary and impractical, he named them. The fool! Those 'visionary' experiments gave me the tool that killed him!

"Yes, my 'impractical' research gave me the power to create life from carbon—and the means of controlling a synthetic mind by an unknown type of short-wave built into that very mechanism you are resting against, M i s s Trent. Those same electrical impulses will direct the fingers of this now insensate image to choke the life from *you!*

"Tomorrow, they'll discover y o u r lifeless body in one of the offices upstairs. And the clues in the form of fingerprints, and so on, will put Paula Lane in the death cell beside that of your good friend Alice Bailey!"

Stiff with fright, Marion watched the little man back cautiously toward the unconscious figure of the real Paula Lane, the gun never wavering. Slowly he felt behind him u n t i l his fingers closed about a hypodermic syringe on the table. And then he came back toward her, the syringe ready in his hand.

"A touch of the needle, Miss Trent," he murmured, "and you will go peacefully to sleep—a sleep that knows no awakening. Do not draw a w a y, my dear; you will feel noth—"

Marion's right hand, concealed by her body, closed on the object she had stealthily been seeking. When the long needle was almost against her b a r e forearm, she acted.

With a single, savage motion she slammed home the heavy control switch of the machine behind her. There was a sudden surging crackle of electrical force and darting streamers of miniature lightning poured from the tube of the mechanism to engulf the stone-like replica of Paula Lane.

"No!" Miller screamed, and dived for the switch. "For God's sake, shut it off! Without shortwave control she'll turn again—"

The agonized cry was snapped off short as Marion's shoulder crashed into his midriff. Man and girl went to the floor in a twisting, struggling heap, both fighting for control of the gun still clutched in the man's hand.

Oddly enough, Miller seemed more intent on breaking away from his attacker than he was in subduing her.

"Let go!" he cried, gasping. "Let go, for God's sake! Quick, before it's too la—"

HIS words ended in a gurgling gasp as his slight body was torn roughly from Marion's arms. Winded, helpless to do more than remain huddled on the

floor and fight for breath, Marion Trent, during the next few moments, witnessed something that was burned forever in her brain.

Professor Munro Miller, kneeling as in prayer, his body bent far back, was clawing desperately at two slender, shapely hands locked about his throat. Standing over him, her face completely devoid of all expression, was the nude figure of Paula Lane.

Yet Paula Lane, wearing a blue gown, lay unconscious on a table across the room! *

Marion, realizing death was very near for the only human who could prove Alice Bailey innocent of murder, staggered to her feet and attempted to tear away the fingers about Miller's throat.

"Stop!" she sobbed hysterically. "You're killing him! Don't let him die!"

But the coldly implacable fingers only closed the tighter.**

Marion, realizing her own strength was helpless to save the man, cast wildly about for something to break the death grip of the shapely female Frankenstein. A pail of water near the sink a few feet away, caught her eye. As a drowning man grasps at a straw, she closed her hands about the metal bucket and brought it down with all her strength on the nude girl's head, drenching both her and the professor.

Even as the bucket was descending, Marion heard the laboratory door burst open and some one come racing into the room.

"Marion! Are you all right?" Lieutenant Lacey grasped the shoulders of the hysterically laughing, sobbing, trembling girl and shook her. "What's happened? Say something!"

He brought up one ham-like hand and slapped her sharply across either cheek. Only then did the mad laughter and wild sobs cease.

"How horrible!" Marion managed to gasp. "Oh God, Lieutenant; it's utterly impossible—completely fantastic. But there is what killed Drew Massey!"

Lieutenant Lacey's eyes followed her pointing finger.

Flat on his back, tongue protruding from between blue, swollen lips, lay Professor Munro Miller. He was quite dead.

Almost completely covering his body was a black, water-soaked mass of powdered carbon!

LACEY put down his empty coffee cup and beckoned to a hovering waiter.

"How about you, Miss Trent?" he asked. "Want another?"

The girl smiled and nodded. Sanity was coming back to her eyes after the second hour since Lacey had taken her away from that basement laboratory.

When the waiter had filled the cups and withdrawn, Marion said:

"It's a good thing for all of us, Lieutenant, that you decided to trail me and

* Since carbon is the basis of all life, all that remained to bring the image that Professor Munro had created to life was the mysterious force that *is* life. Most scientists believe life began through the impetus of cosmic rays on carbon cells. Professor Munro had duplicated that cosmic accident in his laboratory. He has created a body made of carbon, and imbued it with activity (life) by the application of powerful cosmic rays. When Marion Trent pulled the switch, she gave "life" to the insensate image in the cabinet.—Ed.

**Since the carbon-copy girl was an exact duplicate to the last cell, even of the brain, of the original Paula, and was not under the influence of a drug nor of hypnotism, she realized only at this moment that the man who was threatening her life was now at her mercy; and she attacked him purely in self-defense, but with that added terrible strength that was hers because of the peculiar "hardness" of her carbon-copy body. She was an invincible nemesis, and Professor Munro realized this would be true without the mental control he had devised against just this factor.—Ed.

that you listened outside that door long enough to satisfy yourself I've told the truth all along. I hate to think of the reception my story would have had otherwise."

The burly officer grinned.

"Even with that much," he said, "I have a hard time believing it all. But I can promise you that Alice Bailey will be released tomorrow. She had a mighty close call, though. The jury doesn't live that wouldn't have sent her to the Chair on the evidence we had!"

The girl sighed.

"And Paula's going to be all right, too! I'm glad it's over with."

"You and me both," Lacey agreed. He hesitated, rubbing his chin thoughtfully. "There's just one point I can't seem to fit into the picture."

"Yes?"

"That bag of carbon we pulled out of the river. Where does that come in?"

Marion stopped smiling and a grim light came into her blue-green eyes.

"That should be evident to you, Lieutenant. When Miller had no further use for the second Alice Bailey, he stopped her from living and sewed her corpse into that bag. He figured the best way to get rid of it was the river."

Comprehension dawned across the man's broad face.

"I get it! When we pulled it out—"

"—the river water was the catalyst which transformed the body to its original state!" *

"God 'a' mighty!" breathed the awe struck lieutenant.

* It is evident that the carbon-copy robot of Professor Munro is not perfect life any more than the lined radio picture is the real picture, and thus it lacked the permanent vitality of a real body. Water, in this case, was the catalyst which broke down the strange adhesion of the carbon atoms, and short-circuited the cosmic force which gave it animation. The result was a complete collapse back to the original powdered carbon.—Ed.

★ THE SCIENCE OF FORMATION ★

ONE of the most fantastic stories ever written is being written every day in our lives. We see women with small children and in the mirror we see ourselves. How did we come to be as we are? Many, many years ago, scientists began to ponder the same question and since that time, they have made many answers. The entire science goes under the name of embryology, meaning the science or knowledge of the embryo, or unborn, but growing animal.

An animal starts life as a single-celled structure. This cell divides again and again but it follows a pattern set for its species. No action of any kind can change the pattern for a given species, any change bringing forth a new species. Many unsuccessful efforts have been made to explain just why the cell division of the primary cell takes place in this certain inevitable manner, but no real satisfactory answer has been made except the most simple one. The explanation states that the cells cannot move and hence stick together in a set pattern. It must not be thought that only one cell divides, since one cell gives rise to two, two divide to form four and so on. The result is not surprising. After a time, a large group of cells is formed and they persist in the shape of a solid ball.

The next thing that occurs is amazing. All of a sudden, the ball starts to hollow out and just like the molten mass of glass of the glass blower, suddenly has a hole which gets bigger and bigger until the glass seems that it would break for sheer thinness. The mass of cells is one cell thick, and a finger on this hollow ball would collapse it. Once again we are startled to see the ball change and one side sink in. This happens just as we would expect if we put our finger into a ping-pong ball, one side caves in.

This pushed-in ball then begins to act like a true animal should. By continued cell division and formation of new cells, an elongation takes place in one direction. The ball of cells then ceases to look like a ball and begins to look like a long worm. This wormlike structure burrows into the wall of the mother's uterus and stays there getting nourishment, the beginning of a parasitic life.

Attached to the mother's wall, the animal begins to really grow and assume the shape of a baby. Various pockets are formed leading to the inside, and from the inside pockets are formed to the outside so that the gut has both an oral and an anal opening to the outside. The embryo then builds itself a heart and blood vessels. Under the

microscope these blood vessels are nothing but small roundish holes, without muscle or heavy coating of tissue. They are quite different from the adult blood vessel and their formation is not well understood, but it is certainly an odd feeling to see the cells just move out of the way as if influenced by some unknown force and then the blood starts to come through. It is indeed interesting to note that the embryo has a circulation of blood even though not born and that the heart does actually beat with vigor, so that the heart is verily pounding away long before we are actually born.

The one end begins to specialize and becomes the head. The head of the embryo is quite different from the head of an adult, and if growth continued at an even rate until birth we would consider the creature so developed a monster. Luckily it does not do so. All our heads testify to the fact that nature is a very good moulder of skulls and skin to match.

At a later time, the limb buds begin to grow out of seemingly exactly the same cells. We cannot very well account for this either, but the important fact is that it does always occur and with a surprisingly degree of regularity. Later in development the bone is laid down near a ligamentous structure which we used for support in the early days and which is now named notochord. Bone cells also penetrate the foot and arm buds which by now bear quite a bit of resemblance to the adult structures.

After a while the muscles, formed from a very active group of cells which permeate everywhere in the body of the embryo and named mesenchyme, begin to appear in their proper places. Once again we are forced to confess ignorance except to state that this omnipresent mesenchyme also gives rise to bone and the dermis of the skin.

Another group of cells gives rise to nerves while still a third gives rise to the nerves and the nerve processes and capsules This process is exceedingly complex and requires a great deal of careful study and contemplation before any real light is shed upon the subject.

A pocket which leads out from the front part of the gut becomes the lungs and trachea, while other pockets become the liver and pancreas. Various glands, thyroid, thymus and others, are formed from similar pockets, and a good question is why some pockets become one thing and why other pockets become others.

A special group of cells is set apart early in development and this becomes the kidney and sex glands. It is a long group of cells extending the length of the body, starting from just behind the head, at one time. It later shortens, many modifications take place and the adult organs are developed.

From the above remarks one might get the idea that every event in the growth of the baby was an accident or entirely uncontrolled. This is not true. Various controlling factors are at work and two will be mentioned.

The first fact is that the single cell which represents the new individual contains small bit of matter, chemical composition unknown but thought to be catalysts or enzymes which exert quite a bit of chemical influence upon the bending and turning of the various organs as well as upon their formation. Even though we do not actually know the real chemistry behind this action, much work and eager work is being done on the subject at this very time.

The second fact is very important. Certain cells have the property of "inducing" other cells to form structures. It has been conclusively shown that the early cells of the eye can induce other cells to form the lens without too much difficulty on their part. This chemical induction is another great step forward toward a real explanation of the truth and is on the road to being chemically explained.

It must be emphasized here that the science is a comparatively recent one and hence we should not expect too much of it. Wonders have been done and we have progressed far from the comparatively recent time when it was thought by the wise men that the young were really only miniature adults.

★ NON-INSULATING RUBBER ★

ONE of the many uses of rubber has been to act as an insulator so that electrical currents could travel with safety. But this virtue of rubber has sometimes backfired and so rubber companies have experimented for many years to produce a rubber product that would be a relatively good conductor of electricity.

After seven years of research A. E. Juve, of the B. F. Goodrich Company, announced some time ago that his company had successfully combined natural and synthetic rubber into a product that was perfectly elastic yet would prevent the accumulation of static electricity. The substance which changes this rubber from an insulator to a conductor of electricity is a closely guarded secret but tests made on surgical tubes, airplane tires, etc., have all been a success.

This new rubber will find use in factories to replace old time machinery belts and other parts that each year cause millions of dollars worth of damage through fires started by static electricity. The new rubber will permit the electricity to leave the machines and enter the ground before it can accumulate to any appreciable amount. This new product will also be very valuable to our armed forces.

ASTRAL ASSASSIN

By FRANK PATTON

"I'LL kill him . . . I'll kill him!" Noel Kuttner's mutter escaped his savagely twisting lips audibly in spite of his brooding, trancelike state. "I swear I'll kill him!"

His narrowed eyes stared straight ahead into the layered cloud of cigarette smoke that befouled the atmosphere of his study. His pupils were unseeing, unobservant. The paneled wall at which he stared was not mirrored in the depths of his miind. It was as though it didn't exist. Instead, he saw a grim scene that had already unfolded itself countless times in his mind's eye.

Noel Kuttner was once again building up in his imagination the vengeance that he would exact upon the man he hated; hated so terribly that the emotion welled over his being like a putrescent flood. Once more he was picturing himself in the role of a killer in the night.

How vivid it all was. Henry Gardner —coming unsuspectingly down the walk that led from the front door of his swank apartment toward the street light that would make of him a perfect target.

And crouching in the shadows just beyond . . .

Hate filled Kuttner's glaring eyes as he imagined it. Savage, fanatical, coldly reasoning hate. He would be standing there like the angel of death. A macabre chuckle broke from Kuttner's writhing lips as his mind framed the simile. To Gardner he would look more like a *demon* of death. Kuttner would be standing there, gun in hand, facing the man he hated. And when Gardner saw him . . .

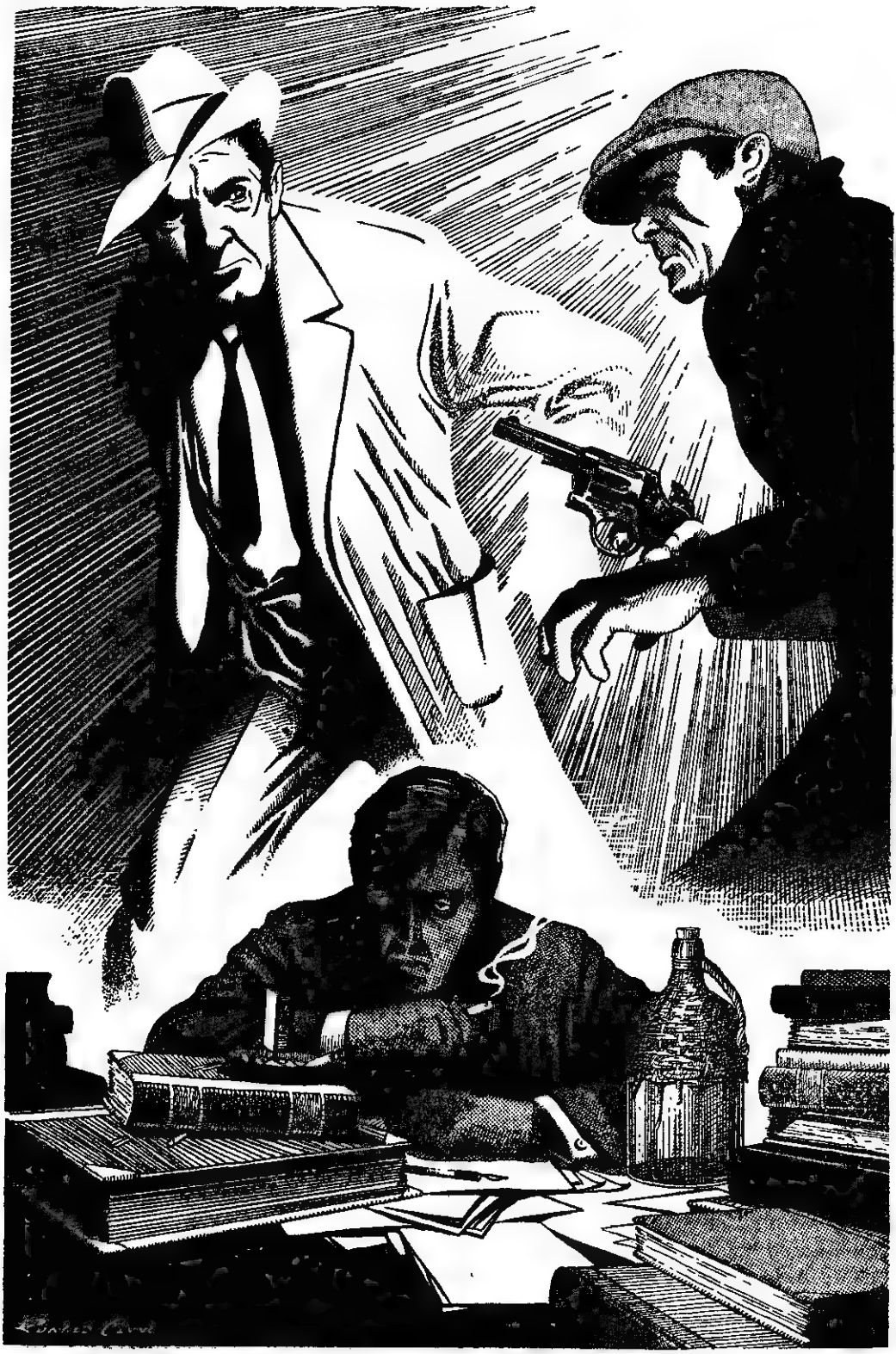
How he would recoil in fear! Terror would sweep over him, engulf him, bring to him the horrible surety of a death he could not escape.

"Don't move, Henry Gardner, don't move! Just stand there and grovel like the scummy rat you are. Stand there and shiver in your filthy boots. And listen!

"You're going to die, Gardner. Die like a rat in a trap. You won't have a chance. I don't intend to give you a chance . . .

"You never gave anyone else a chance, Gardner. Not you! There isn't a soul, or a heart, in you. That's one reason I'm going to shoot you through the head, Gardner. I don't want to risk the chance of not killing you by shooting you through a heart you haven't got!

Henry Gardner died—but the way he died was so fantastically incredible that Chief Flannerman refused to believe an error had <u>not</u> been made



"This is the way I will kill you, Henry Gardner . . ."

"Justice, Henry Gardner; that's what this is! Justice. You're going to die to make the score even—or as even as ordinary death can make it. If I were Genghis Khan, or Attila, or Tojo, you'd be subjected to the most awful tortures the mind of man has ever devised, before you died; and even then the score wouldn't be even. But it isn't in my power to do that, Gardner. See how lucky you really are? A clean, quick, painless death . . .

"Remember the reason for what's going to happen to you in a few seconds, Gardner? Remember what you did? Maybe you don't understand the *whole* reason for my vengeance, Gardner. I'll refresh your memory before you die; it's the only real torture I can put you through . . ."

OBLIVIOUS of what he was doing, so intense was his concentration on his hateful imaginings, Noel Kuttner took a cigarette from the receptacle on his desk, lit it and blew the smoke slowly from his lungs. Then, forgotten, the cigarette smoked in his fingers, sending a long, curling streamer of blue-gray coiling up to flatten out and join the heavy blue cloud already hanging over Kuttner's head. His picturization of a scene of vengeance went on building in his mind . . .

"You had enough money, Henry Gardner. You could cover up, legally, the crimes that you committed. High-priced lawyers could get you out of anything. I didn't have a chance to fight you . . .

"Those bonds, Gardner. How cleverly you manipulated them! You went into the market and before I knew what was happening, I was a ruined man. You cleaned me out, Gardner.

"Oh, yes, it was perfectly legal in every respect. After all, the stock market is a gamble. I gambled—and I lost. That was enough to make me hate you, Gardner, but no more than I'd hate any man who cheated me. If it had been cheating in a card game, I'd have punched your face. But that's as far as it would have gone.

"It was because of Marie that I really had reason to hate you. Marie was my girl, Gardner. I loved her; I intended to marry her—just as soon as I got enough money. But I never got enough money; you took it away from me.

"You weren't satisfied with that, Gardner. Weren't satisfied with taking away my money. Maybe, you though, she'd marry me anyway, after I got a fresh start. So you took her away from me, too! And you didn't even *want* her!

"Marie always was a gullible little thing. She had her eyes full of stars. That was one of the sweetest things about her, her innocence. That and her hero worship. In the financial world, Gardner, hero worship boils down to money. The man with money must be a hero. It must take courage, Marie reasoned, to win through in business and wrest riches and fame from tough competition. You were a hero to her, Gardner. You knew how she believed that, and you played it up; made yourself a hero in her eyes.

"You had the weapons, Gardner, and you used them like a master tactician. Money, gifts, attentions, jewels and clothing—you filled her head with glamor. And when you had blinded her enough, you took her.

"How was she to know what even I didn't know, Gardner? How was she to know what you were in the underworld? Even the police have never been able to pin your activities on you. Perhaps they never even suspected how really big you were in the crime world . . .

"It's when she found out that terrible things happened. And when she had found out, you turned off the glamor; you became the predatory beast that you really are.

"I don't know exactly what you did to her, Gardner. Damn your soul, I don't know exactly . . . but you do, and you can think of it all now! Think of it, Gardner! What did you do to her?

"THE morning they found her body in the river, Gardner, I nearly went insane. I came for you, but you had disappeared. You'd run away, Gardner; hid out somewhere upstate. On a vacation, they said.

"During the weeks I waited for you to come back, Gardner, I fought with myself. I knew only one thing—I wanted to kill you. But I wondered if I would. I'm a coward, Gardner. Everybody says I'm a coward. I remember how they said it that day you forced me to my knees in the market. They said it took guts to buck Henry Gardner, and that I wasn't having any more success at bucking than anyone else . . .

"I wondered at that for a while, Gardner. I wondered for a long time if I *was* a coward.

"But now you see I'm not a coward, don't you, Henry Gardner? Now it's you who are afraid. Afraid down to your heels that you're going to die. You don't want to die, do you? You keep thinking of Marie, and how she died. You don't want to die that way do you?

"I wish I could make you die that way, Gardner. But unfortunately I've got to do it this way. The police won't believe me. Nobody can track you down. You're too big in business and too big in the underworld. Everybody's afraid of you. They say you have a pull with the police commissioner; that you have a police guard around your apartment all the time, so that nobody can kill you when you come and go.

"But you see I'm not afraid of that, Gardner. I planned this too well. And you're standing squarely in the light, Gardner, a perfect target. I can't miss! Then I'll be away in the dark before anybody sees me. They'll never see me. And they'll never know who killed you. You have too many enemies.

"You smashed me, Gardner. You took Marie away from me. And I couldn't do anything about it. People said I was a coward, too. They still think I'm a coward. That's why they'll never believe I could walk up like this, shoot you calmly through the head, then disappear in the dark. They'll never have the slightest suspicion.

"I figured that all out, Gardner. And now, I'm going to have my revenge. Now, right now, you are going to die! Stand up, Henry Gardner! Pull your shaking body together and make believe you are a man! Look as callously upon your own death as you looked at Marie's dead face, shrugged, and then went on a vacation!

"I'm bringing the sights on this gun up deliberately, slowly, surely, Gardner. Now they're centered directly on your forehead . . .

"Ah, you realize at last that I mean it, eh? You've been thinking, too, that I could never do it; that I didn't have the guts to do it! Go ahead, Gardner, scream. Scream like the terrified animal that you are. Scream and die . . .!"

In Noel Kuttner's mental ear the sharp bark of the pistol shot was startlingly real. On his face was the savage satisfaction of a hate that was consummated. In his mind's eye, he watched the body of Henry Gardner slump

(Continued on page 207)

Scientific

The GREEK GOD of FLOCKS AND FESTIVALS, **PAN**, IS PURPORTED TO HAVE COME FROM THE NORTH OF EUROPE WHERE HIS **PROTOTYPE** WAS A **WOOD-SPIRIT**.

RITUALS OF ANCIENT EGYPTIANS PERFORMED BEFORE THEIR GOD **OSIRIS** ARE REFLECTED IN TRIBAL INITIATIONS OF **AMERICAN NAVAHO INDIANS.** THE SUPERVISOR CARRIES THE **STAFF** AND **FLAIL** OF OSIRIS.

EGYPTIAN'S PRINCIPAL DIETY **AMMON-RA**, WAS SYMBOLIZED BY A RAM'S HEAD ON A MAN'S BODY. THE HEBREW **"AMEN"** MEANING **"BE IT SO"** WITH WHICH WE END OUR PRAYERS, IS DERIVED FROM THE EGYPTIAN **AMMON**.

Mysteries

MYSTERY OF PAN, SATURN AND AMMON-RA

By L. TAYLOR HANSEN

How is the past of the human race tied up with the strange association of Pan, Saturn and Ammon-Ra?

THERE is a strange figure which has been thrust into the underworld by the Semitic-speaking peoples of the Mediterranean, and who are responsible for the great majority of the present living religions of the world. Therefore, when certain animals have been considered unclean by those religions, the answer must be a very early contact which the Semitic Tribes had with the people who either domesticated or worshipped these animals.

For example, the cat, dog, pig and snake are certainly among the unclean or tabu creatures of Mohammedanism, Judaism and Christianity, not to mention the religion of the Brahmins. Yet one of the most interesting figures in this underworld is a creature whose Christian name may be a corruption of Saturn. Ancient America knew this figure as the "Two-horned," and to the South American Tupi Tribe, he was known as "Tupan."

This name suggests immediately that he may be connected with the old Greek figure of Pan. It has been said that Pan is in reality from the woods of northern Europe, where his prototype was once a wood-spirit. However, we must remember the old Greek satyrs. Furthermore the word satirize certainly means to make a satyr of something or to poke fun at it. Yet why was this similar figure thrust into the vale of ridicule? Was there originally a likeness in this confusion of two figures? Were they the same? What can we learn of Pan or Saturn from the legends of the Americas?

The most enlightening story of Saturn is the Festival of the Saturnalia which the old Romans celebrated and which we adapted to our Christmas holiday season. In studying this festival, we see that the originator seemed to have been a beneficent person. Apparently he was a rebel leader who led his people in revolt against a great tyranny. The festival, in the turning of social tables, the forcing of masters to wait upon their servants for the duration of the festivities, the presents to children and charity to the poor suggests that for a time at least, the revolution was successful. Furthermore, it suggests that the nation against which it had revolted had rigid casts, sacrificed children, as well as the poor. The great license of the festival would bespeak the almost insane joy of the people at their deliverance.

Now the great figure which demanded the sacrifice of children was Baal or Moloch. Furthermore, the sacrifice of the little ones through fire seems to have had island-influence. Upon the American side the old-old God of fire and water demanded child-sacrifice. Apparently upon the American side this god was connected with the dragon, and sometimes with a veiled figure which may have gone back to the Mother Goddess of Earth and Fertility herself.

In this confusion it is difficult to trace the two-horned Pan. Yet certain facts in the northern continent of the Americas concerning the name "Pan" are most enlightening. The Algonkins tell us that there was once a lost island in the sunrise sea which their distant ancestors called "Pan."

Far to the south of this stock of northern tongues, we begin to meet Quiche traditions, and those of the earliest Toltecs and Mayans. Again "Pan" is a lost land in the sunrise sea. "Panuco" is the place where those landed first who came from "Pan." "Mayapan" is the name given by the Mayas to their homeland. "Tlaplan" seems to be an attempt to euphonize the two words "Atlan" and "Pan," as is "Pantlan." "Pantekas" is evident as the name of a tribe, when we remember that "tekas" meant "people," another name for whom was "Huastekas"—the first part in all Toltec tongues had a connotation of "ancient" or "sacred."

THERE is one strange connection between the Americas and the Ancient Greek figure of "Pan." He was pictured as a musician and the instrument upon which he played was called "Pan's pipes" or the "Pipes of Pan." These series of connected pipes of different lengths are actually found in great abundance, especially in South America. The Incas brought them to an especial perfection, making them so large that they became a small organ, though still blown and played by one man.

Furthermore, in the oldest graves of the ancient long-headed types found under as much as thirty feet of soil in the Pacific California Channel Islands as well as upon the coast of Peru, these little clay "Pan's Pipes" are to be found buried with the

crouched skeleton and held to the lips by the bony hand. This latter would certainly place the ancient musical figure very far back indeed in the mists of time.

Crossing to Egypt, we find a strange likeness to Ammon-Ra and Osiris in this figure of "Pan." To all three—Saturn, Pan and Osiris—a certain amount of licentiousness evidently followed their festivals. The legend that Pan was in the habit of luring away young women must have had some connection to these half-forgotten orgies which were revived again when the Osirls cult invaded Rome. Yet here we pick up a most interesting connecting link which has its echoes in the present-day dances of the Pueblo Indians. Osiris is sometimes pictured as carrying a flail whip and a staff.

This figure is to be recognized from the dances of the Navahos in the deserts of Arizona to the Tupis in the steaming jungles of Brazil. He is usually the god of the initiation of the young children who are whipped before being taken into the tribe by this god, who then discloses the tribal secrets. Often he is the supervisor in the other dances, walking up and down, but never dancing. He wears upon this occasion a wide-brimmed hat. It is suggestive that this type of hat was adopted by the Mexican peons and later by the Navahos and by our own cow-boys. In all of these dances he carries the flail whip and the staff of Osiris.

Did Ammon-Ra have some ancient connection with the figure of the whip and staff and the god of the licentious orgies? Both Ammon-Ra and Osiris were connected with the sun, and earlier Osiris was also evidently connected with the arts, learning and culture while the Serpent which crowned him showed that he was the ruler of the sea.

From the Norse sagas we gain a little light, and what little we gain seems to point to the fact that a great kingdom of the sea was conquered—a kingdom which was also an island of fire! Gangler, before killing Fafnir the Dragon, wife of Votan, asks her about the state of the world "before the races mingled and nations came into being."

For answer, she describes the land of Muspell which is a luminous and glowing world to the south, too hot to be entered by those who are not used to the land. It is guarded (ruled?) by Surthur (Arthur, or Thor?) who carries a flaming falchon upon his hand. Does this mean he is of the Eagle or Great-Bird Totem, which is sometimes called in America the "Thunder-Bird" or "Fire-Eagle"?

ANOTHER interesting line is that which describes the rainbow as a bridge which will be broken if the sons of Muspell are to ride across it. One wonders if this "Rainbow Bridge" has a connection to the many Amerind "Rainbow Bridges," usually always connected with the dragon.

In the dances of the Keresian Pueblos the veiled figure which has many Itzamna characteristics carries a three-pronged rainbow weapon or symbol in one hand. The Mayas declared that Itzamna was the mate of the rainbow. And the more western Pueblos declared that the grandfather of the "Twins" was the Rainbow worm.

Upon the other hand, various sacred, great natural bridges, and guarded by different tribes such as that shared by the Hopis and the Navahos, are regarded as the passageways to the other world.

Was this old line in the ancient Norse song an old prediction? And what are we to think of the word "ride"? Could the people of Muspell, the fiery southern land which was connected by the rainbow bridge, possibly have had the horse? This would seem to suggest that some relic of an old submerged portion of the Central Ridge remained connected until such a time as the Aryans had appeared with the horse. Had the people of Muspell obtained the horse from the invading Aryan tribes before the last vestige of their land disappeared below the surface of the sea?

And again we find the name of this land given as Hel. Further yet, we seem to read the very eye-witness description of its fiery destruction.

"Of that is to be told, which first I saw, when I to the world of torment came: Scorched birds flew numerous as flies. From the west I saw Von's dragons fly and Glaeval's paths obscure: their wings they shook, and wide around me seemed the earth and heaven to burst."

Is Von the name of the doomed land, and perhaps the dragon the name of the long boats propelled by sails and oars? Only the hands of the early priests here have edited and cut, interposing their own explanations, and thus ruining a literary fragment of a disaster which might have otherwise come down to our time intact despite war and pillage.

Yet in spite of them, we may reach some conclusions. If Pan was the name of one of the islands, then Hel was the name of another. That this once had to do with the sun or was a sun-name is completely attested to by the use of it in Greek. Helas was the name they gave their country, and Hellenes the name they reserved for themselves. Furthermore, Muspell and Pelasgians, Ilium, Illyrians, Illyria are suggestive enough, but it is startling indeed when we find that the Incas used the word "illi" as the root for light giving! Did our words illustrious and illuminate have their roots in the tongue of a sunken Atlantic island?

THUS though we seem to pin our figure with the tail and the horns in an ever-narrowing Atlantic orbit, nevertheless he still escapes identification in a never-ending game of hide-and-seek. We have seen that the Christian religion has consigned his homeland to the underworld, and therefore both he and this homeland must have had a very strong religious influence over the Atlantic realm previous to the last two millenniums. Yet who was this early leader and what was the significance of the curious mask of the two-horns under which he identified himself?

Perhaps we shall never know. Perhaps we may

only guess as we read in the ancient Norse "Song of the Sun"

"The Sun's hart I saw from the south coming,
He was by two together led:
His feet stood upon the earth,
But his horns reached up to heaven."

And yet as we see this curious figure in the dances of an interesting copper-skinned people, this figure who strolls back and forth with great dignity carrying his flail whip and his staff while he watches the dancers, sometimes voicing his approval with a high-pitched yodel, we cannot help but realize that the genie has really allowed us to pass through the portals of untold ages, and to view a ritual which took place when lands and oceans had far different contours from what they have today.

Thus through the mists of untold millenniums, this figure from a mythical past still lives in the prayers and the dances of his red-skinned children. And we of paler skin, watching, can not help but wish that we could only pierce the veil of dead ritual to the living story behind the "Two-horned," whom the Greeks called Pan, but with whose Egyptian name we end our prayers in the belief that it means: "Be it so!"

THE END

STRANGE CUSTOMS OF THE NAVAJO INDIANS

EVERY Indian tribe has its own peculiar beliefs and customs, and the Navajo Indians are no exception. They will never touch a snake or anything that is made to resemble a snake. Although there is no connection (?) the Navajo husband must never look upon his mother-in-law's face. If by accident he should see her, he immediately fasts and prays to his Gods that no evil may befall him. When their wife's mother approaches, all husbands from the mightiest chief to the humblest warrior hides his head in his blanket or walks past her backwards to avoid looking upon her face.

The old time Navajos lived almost entirely on game and never eat either fish or rabbit. This is especially strange when one considers that rabbit is plentiful in the Navajo country, yet they would rather starve than touch the meat of a rabbit.

One of their favorite meats is the prairie-dog and they have many clever ways of trapping him. One trick used by the Navajo hunters is to place a small mirror in the entrance of the prairie-dog's burrow and then hide nearby. When the prairie-dog sees his image in the mirror, he thinks it is some intruder and rushes out to drive him away. Just as he leaves his burrow, the hunter lets fly his arrow in such a way as to pin the prairie-dog to the ground to prevent his falling back into his home. More skilled hunters like to wait just above the burrow and then seize the prairie-dog by the neck out of reach of its razor like teeth. With a deft twist, the hunter breaks its spine and another prairie-dog is on its way to be a feast.

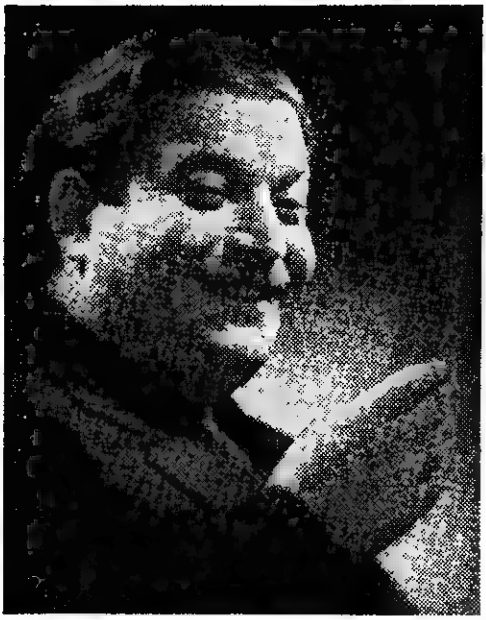
But it is during the season of the summer rains that prairie-dog hunts really get under way. Just as soon as the rains come every Navajo that can walk goes to one of the various dog villages. Using hoes, sharpened sticks, stones, and knives, everyone digs a trench to the mouth of a prairie-dog's burrow. This increases the amount of rain water that enters the burrow and soon the prairie-dog pops up to see what is the matter. That spells finis to Mr. Prairie-dog, who is knocked out and thrown on to the ever-increasing pile of its neighbors. After each hunt, the entire Navajo village feasts on their favorite food until it is all gone and then another hunt is organized.

To the Navajos the king of all beasts is the bear and they will never kill one unless the bear has first killed a Navajo Indian. The Navajo is a brave hunter and does not fear the bear because of its great prowess but because they are supposed to possess supernatural powers. But once a bear kills one of their tribe and the Indians know positively which bear is the murderer, they consider it their duty to destroy the bear. The hunting party is led by the tribe's medicine men so that the hunters will be protected from evil spirits. When the den of the guilty bear is reached, the medicine men sing the praises of the mighty bear and beg his forgiveness for the terrible task that he has forced upon the Navajos. When this solemn ceremony is over, the hunters destroy the bear and leave him untouched, for it is a terrible crime for a Navajo to even touch the bear's skin.

Another queer custom of the Navajos is to shun a house in which a person has died and every village has many houses that are abandoned forever. They also regard various feathers as being good or bad charms. If a feather is white or brightly colored it is a good charm and thus the feather of a parrot is especially prized. Many of their tribal dances cannot be held without them and so the feathers are brought hundreds of miles from Mexico to satisfy the custom. The feathers of the eagle are also highly prized by the medicine men who use them to "cure" the sick and drive evil spirits from the village. Dark feathers of the owl, buzzard and raven are bad charms and only those who are evil will touch them. Thus, if any Navajo is found to have one of these feathers in his or her possession, a trial is held and the offender put to death. These feathers of evil are used in secret by a person to harm an enemy by placing the feather where he is sure to walk and then wishing that bad luck will come upon him.

Of course today the Navajo is adopting many of the customs of white man, but many of their ancient customs still persist.

Presenting The Author



HELMAR LEWIS

I WAS born in London, England, on October 12th, 1905 When I was about six years old I came to America with my mother and three brothers where my father had already become a citizen.

I attended and graduated grammar school in Chicago where I and my family have remained since our arrival from England.

From grammar school, I went to the Crane Technical High School. I became an assistant editor of the school paper (a weekly) and also of the monthly magazine to which I contributed a considerable amount of juvenile material.

After graduating, I went to work for a few years. I attended Northwestern School of Journalism night-school for about a year. I was writing poems, short stories and plays at night after work, contributing to local newspaper columns. But after saving some money at work, I quit—about fifteen years ago—and have since remained in the writing profession

My first published (and paid for) work was an article in the Billboard Magazine (on the state of vaudeville) which I wrote under the nom de plume of Luis de Hermano.

In the meantime, I was acting with a Little Theater group on North Clark street, where I played, I remember, a Mexican general and a German scientist. During a trip to New York, I was hired by the Provincetown Theater as a stage manager, although I knew nothing about professional stage-managing. We put on Gluck's "Orpheus and Euredice" and I'll never forget the time I sent the curtain up without the solo dancer who was supposed to be on the stage at the time

I returned to Chicago and sold my first story to *Esquire Magazine* "Battle Royal." I continued to write for small magazines; also wrote a series of pamphlets (under the nom de plume of Hugh Morris) with such titles as "The Art of Kissing," "The Art of Writing Love-Letters," "Gypsy Dream Book," "Card Tricks," "An Expose of Nudism," etc.

I ghost-wrote a book on Gertrude Stein, together with a few other books whose names I am not at liberty to divulge. Then I began to write for the University of Knowledge, a ten volume encyclopedia under the aegis of Glenn Frank. I wrote and edited three volumes of world-travel, a book of animals, and much of a book of wonders.

I like to use my dialect ability for what may be termed practical jokes. I recall once pulling a stunt at a party masquerading as one Suyo Kayamuto, who was supposed to be a fourth British, a fourth Japanese, a fourth German, and a fourth hand at bridge. I carried it off so well—with a combined Japanese, German, and British dialect—that I received two proposals in marriage from a pair of starry-eyed romantic females.

Once I did a Chinese soldier on the air. My lines had a great many repetitions of the word "rice" in them. Chinese cannot pronounce "r" and change it to "l" and, although I protested, the producer insisted I stay in dialect character so that I was continually speaking about my "lice." I got a fan-letter from an exterminating company as a result, offering me the use of its services.

Another time, I found myself reading Snuffy Smith's hill-billy dialect in German dialect.

I began writing pulp fiction for Ray Palmer, editor of this magazine, and have never met a guy who has amazed me more! I get the biggest kick of all out of writing for him—and I hope you like my stuff as well!

DISCUSSIONS

AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. Bouquets and brickbats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department. Get in with the gang and have your say.

PAUL'S BEST TO DATE!

Sirs:

I have just bought your last issue of AMAZING STORIES and I haven't had time to read it yet, BUT, I had to write you in regard to that back cover by Mr. Paul. It's his best to date, including any he has painted, from 1926 up to date! I am begging you on bended knees to sell me this original.

CORDELL MAHANEY,
Gainesboro, Tenn.

Yes, we agree, Paul reached his peak with that back cover painting. But as is always the case, anything that good never comes back to us from the art department. Frankly, we wanted it ourselves!—ED.

A SUGGESTION

Sirs:

How about a picture cover for England's new amazing FLYING MAGNET? I have just seen a newsreel of this astonishing craft in action, skimming over the waves of the English Channel, and thereby carrying a magnetic flux which sets off magnetic mines of the Nazis.

J. HARVEY HAGGARD,
885 5th Street,
San Bernardino, Calif.

It's a good idea, Harvey. We've got some swell covers coming up, but it's worth a little thought. Maybe we can improve on the Flying Magnet.
—ED.

WE GET CORRECTED!

Sirs:

What are you trying to do, sabotage rocketry? I'm afraid the reply you gave Valdon Lang's letter in the June issue won't do him much good in an argument. I don't give a tinker's dam what you do with this letter, but won't you *please* print a correction? That sort of misinformation is what drives rocketeers mad . . .

A. The American Interplanetary Society is now the American Rocket Society—they changed the name in 1934 and G. Edward Pendray hasn't been its president for years. He resigned because he was afraid the society would get to be too much of a one-man show. He, however, still serves as chairman of the Experimental Committee, if I remember correctly.

B. The ARS has a set of plans for a spaceship, all right—but they were worked out before the war by the British Interplanetary Society. Copies were sent to the ARS for safekeeping during the war. So far as I know—and I have a complete set of the ARS bulletin "Astronautics" dating back to the society's founding—the ARS has never designed a spaceship, although various details such as controls, etc., have been printed in Astro from time to time.

C. The old Verein für Raumschiffahrt never built any rocket cars. They were built by Max Valier, a founder of the VfR, but the VfR had nothing to do with them. The auto manufacturer, Fritz von Opel, financed the Valier cars. Incidentally, rocket cars aren't practical—they can't go fast enough for the jet to attain good efficiency. They do, however make good high-speed short-range racing machines.

D. Von Opel definitely was not killed in a rocket car. The one who was killed was Max Valier. Testing his car preparatory to an exhibition, the rocket motor exploded and blew him twenty feet into the air. He died a short time later.

E. In the famous rocket hoax of 1933, the rocket was not supposed to have exploded. The story was that the ship took off from the island of Rugen, in the Baltic, and rose about six miles. The pilot was unconscious during the ascent, waking up just at the peak of the flight. He then steered the rocket down by pulling on the parachute cords (which were supposed to have run into the cabin) and by means of large fins on the rocket made a good story at the time, though—I remember reading an account of it in AMAZING then.

I agree with you 100% on your last sentence. But a few words about the gentlemen who don't like, or can't conceive of, the idea of rocket flight.

Several scientists have gone to a lot of trouble to "prove" that rockets can't fly to the Moon. (Like Simon Newcomb vs. the Wrights.) All this reflects on their intelligence, though. You see, to "prove" this they carefully assume rocket efficiency to be so low that it couldn't possibly be done—the only trouble is, we have already achieved higher efficiency than they allow for in their calculations. This efficiency permits of a Moon-flight right now, but at a tremendous cost in time

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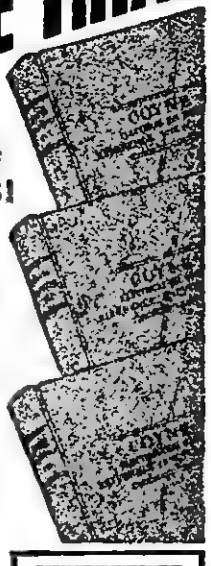

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and money. There is no doubt that we'll improve the efficiency until such flights are capable of being made at a more reasonable cost, but the point is, it *could* be done now if it were absolutely necessary.

As for people who label us "crackpots"; they make fools of themselves. Dr. Robert H. Goddard, the New Mexico experimenter you mentioned, was head of the research division of the War Department during the last war and has had two reports published by the Smithsonian Institution. Professor Hermann Oberth of Roumania is likewise not exactly what one would call a nut. Mr. Pendray holds a high post in Westinghouse Electric; Willy Ley has attended universities in Berlin and Koenigsburg; Phil Cleator of the BIS is an aeronautical engineer; John Shesta of the ARS Experimental Committee is a successful mechanical engineer (connected with the New York subway system, I believe) and the Italian engineer who designed the successful rocket plane(s) works for the Caproni aircraft works. Crackpots?

KEITH BUCHANAN,
Box 148,
Amsterdam, Ohio.

Many thanks, Mr. Buchanan. You provided factual material of great value, to supplant and correct our memory, which was all we had to draw upon. Ten years out of touch with the Society has erased much, and mixed up the rest. But we think your letter will answer all of these scoffers for some time to come!—ED.

A PECULIARITY?

Sirs:

A certain very curious peculiarity has manifested itself in AMAZING STORIES this year. So far in 1943, each and every issue's best story has *not* been illustrated on the cover! (We wonder why?) Take this issue (May), for instance. Was the best story the much ballyhooed "Priestess of the Floating Skull"? No. Was it Rocklynne's previously advertised "Warrior-Queen of Lolarth"? It was not. Was it one of the three stories listed on the cover? It wasn't. It was a totally unexpected story that the editor barely mentioned. It was Robert Moore Williams' extremely clever "The Machine." This story had that necessary spark of originality and freshness which too many Williams stories lack. It was also well-written and characterized. It is also one of the few stories in your mag which needs, and deserves, a good sequel. And finally, it presented a robot that was really a *robot* instead of a human being in tin armor.

PAUL CARTER,
156 S. University Street,
Blackfoot, Idaho.

Maybe when a cover is painted, the best story of the issue isn't in yet? We rushed "The Machine" into the line-up, and placed it first, because we knew it was a good story. However, actually, the cover story got record fan mail!—ED.

IT JUST GOES TO SHOW YOU!

Sirs:

I have just finished the May issue of AMAZING STORIES. I liked it so much I couldn't resist writing to say so. I thought the cover was excellent. I liked McCauley's pictures for "Priestess of the Floating Skull," and "Adam's Eve" very much also. Julian's picture for "Juggernaut Jones, Draftee" was good. I liked all the stories. I thought "Priestess of the Floating Skull" was excellent. "Warrior Queen of Lolarth" comes next, then "Twisted Giant of Mars" with "Ordeal of Lancelot Biggs" close behind. "Juggernaut Jones, Draftee," "Adam's Eve" and "Death in Time" come next with "The Machine" bringing up the rear.

JIMMIE JOHNSON,
401 N. Delphos,
Kokomo, Ind.

Here's an example of what we mean. This reader places "The Machine" last. Perhaps reader Carter just doesn't happen to think the cover story is the best each month? Matter of personal taste, we say. It seems true that when a magazine has a line-up of consistently good stories, there is much variance between the lists of the various readers. When readers are unanimous about a story ranking last, or agree on their lists, we re-read the last stories and try to figure out why they were no good. But when they rank first and last and everywhere, we are absolutely certain that here is a very good story!—ED

RUSSIAN STORY CLICKS WITH A RUSSIAN!

Sirs:

Let me congratulate you upon your fine magazine and especially the longer novels and serials which have appeared in it. I have enjoyed your magazine for several years and it is on a special occasion that I am writing you. I have just finished Part I of Edwin Benson's serial "Priestess of the Floating Skull." I am a Russian myself and this is the first science fiction story I have found about my homeland. The front cover illustration has affected me as no other illustration ever has, especially since it reminds me of my many former friends over there. I have not received word from them for over a year—since the Germans destroyed our beautiful city. But your cover illustration—the picture of one of our own magnificent *Russian* girls—has somehow cheered me. You could have no conception of how much this picture of a Russian girl means to me, one of her countrymen

SERGEI K. GOVINKIEV,
(no address)

We are certainly glad to know that this story had the effect on you that we hoped it would have. When we planned a Russian story, we tried to make it as authentic as possible, and we think a great many Americans understand Russia and Russians better as a result. The girl on the cover was our own lovely secretary—and although she isn't Russian, we agree she certainly looks like one on the cover! We hope you liked the last part of the serial as well as the first.—ED

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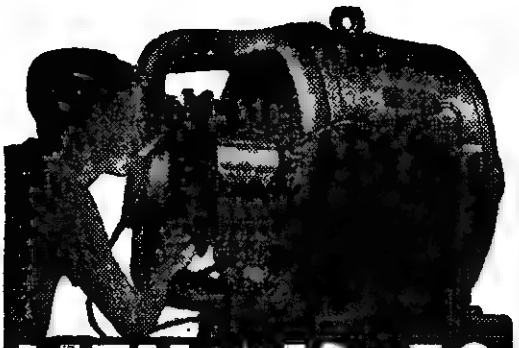

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★ NICE FISHING ★

DID you ever see a deep sea monster? Most people scoff at tales of white faced fishermen or watchers along the seacoast who swear to have seen enormous serpents swimming in the distance. They attribue these constantly recurring stories to optical illusions created by twilight and the movement of the water. Occasionally, some large fish is washed up on shore and the mystery of the sea monster seen in those waters is solved.

But an event occurred in the waters off the Florida coast that lends credence to the possibility of a type of enormous fish that lives deep in the ocean and whose size dwarfs that of the whale. One day some fishermen were out in their boat when a fin cut the water and they decided to have some fun by harpooning the "shark." Instantly the water foamed into activity and then followed the wildest thirty-nine hour ride those fishermen ever had. For the enormous fish they had speared was heading out to sea with all the power of a wounded giant. The men had to bail out their small boat constantly and several times they escaped death from the monster's thrashing tail by inches. After a day and a half of this exciting contest, the weary men were able to tow the tired monster to Knight's Key and there tie it to the trestle work, but with a flick of its tail the mammoth smashed the pilings into bits. Then a thirty-ton yacht was pressed into service, but the thrashing tail disabled it. Finally, a tugboat was used which succeeded in towing the giant to the beach at Miami, Florida.

Examination revealed that it was not a whale, for it breathed like a fish. It was forty-five feet long and weighed 30,000 pounds. Its tail from tip to tip was ten feet. It had several thousand teeth and its hide was three inches thick. Before its capture it had swallowed another fish weighing slightly less than a ton!

But the most surprising revelations was that this monstrosity was only a baby! Its backbone was of a cartilaginous nature—a condition full grown animals outgrow as their backbone becomes a true bone. Thus speculation as to the size of the adult of its species is awesome. That it was a deep sea fish was evidenced by the size of its eye—no larger than a silver dollar. A larger eye would be ruptured by the great pressure at the bottom of the ocean. Also, the fact that the pupils did not dilate would indicate that the creature lived at least 1500 or more feet below the surface, where little light penetrates. Probably some earthquake below the sea drove the fish to the surface where the difference in the water pressure burst its bladder, thus making it impossible for the monster to return to its own level. And it is likely that others of the same species, perhaps twice as large, have been seen by popeyed human observers who understandingly might pass on the tale of block long sea serpents to a jeering world.

★ NEW SOURCE OF VITAMIN A ★

WHEN we think of the discovery of vitamin sources, we usually picture a scientist working in his laboratory and testing many different substances. Well, this picture is true for 999 out of 1000 cases, but every once in a while a source of some vitamin is due to the resourcefulness of some business man. And it was just such a case that gave the world its richest source of the vital vitamin A, the liver of the soupfin shark.

It used to bother Guaragnella, a San Francisco fish broker, to see the huge liver of the soupfin shark going to make fertilizer with the rest of the shark's carcass after the fins had been cut off to be used in preparing a Chinese delicacy. He knew that cod livers produced an oil that was rich in vitamin A and that it brought in a nice price. Being a shrewd business man, Guaragnella decided to take a chance and have the shark liver analyzed to see whether it had any value. Imagine his amazement when he learned that the liver of the soupfin shark had a vitamin content which was thirty times as rich in vitamin A as cod liver oil.

Guaragnella knew he had hit on something good and immediately started to bid for soupfin sharks that the fishermen had brought in. So persistent was he that the price soon rose from $10 a ton to $40 a ton. Other brokers became suspicious of his sudden interest in the shark and the secret was soon out.

Today the prices have gone as high as $1,500 a ton and all the fishermen are going for the soupfin sharks to such an extent that the government may step in with some kind of conservation program.

Not only have soupfin sharks been in demand but even the humble little dogfish shark has taken on a new value since its liver oil was found to have a small vitamin value

Besides being used to make vitamin pills, the shark liver oil is of great value for enriching margarine that is being shipped to England and the other allied nations. The shark liver oils of lower grades are being used to increase the vitamin content of stock feeds for dairy cattle and chickens.

Latest research figures show that the shark liver oil has a higher vitamin content during certain seasons. During the summer months when the young soupfin sharks are being born, the vitamin content of the parents' liver oil is very low. Thus the shark fisheries are demanding that not only the number of sharks being caught be limited but also that during certain seasons the sharks should not be caught at all.

It seems strange that this fish which for so many years has been of little value and always regarded as a killer and general nuisance may soon be protected by Federal and state fishing laws. But then, nature always has been baffling science.

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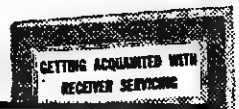

PARTIAL LIST OF SUBJECTS

How superheterodyne receivers work
How to remove tubes, tube shields
Three reasons why Radio tubes fail
Electrodynamic loudspeaker
Output transformer repair
Gang tuning condenser
I.F. transformers—What they do, repair hints
How to locate defective soldered joints
Inside story of carbon resistors
Paper, electrolytic, mica, trimmer condensers
Antenna, oscillator coil facts
Power transformer: construction, possible troubles
Installing power cord
Tone controls
Dial lamp connections
Receiver servicing technique: Checking performance
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Circuit disturbance test
Isolating defective stage
Locating defective part

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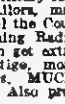

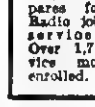

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CORRESPONDENCE CORNER

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ASTRAL ASSASSIN

(Continued from page 195)

down, blood gushing from a neat hole in his forehead—in the *exact* center of his forehead . . .

The silence of Noel Kuttner's study was broken by a strangled gasp as Kuttner's hand went to his breast in a clutching motion. A gurgling sound came into his throat, and blood welled from his lips, and from between the clawing fingers that tore at his shirt. With gaping surprise in his rapidly glazing eyes, Noel Kuttner sagged forward over his desk, then complete blankness entered them and he lay still.

* * *

"I MUSTA winged him, Chief," protested Patrolman Cressy. "I saw him clearly under the street lamp, just as he fired point-blank at Gardner's face. I'm sure I plugged him, at least in the arm. I'da swore it was plumb center in his chest . . ."

"Now listen, Cressy," said Chief Flannerman in irritation. "Don't get me any more riled up than I am. You've been on the force long enough to know you're talking nonsense. In the first place, how in the hell did you let Gardner get plugged so easy? Not that it ain't a public improvement . . ."

Cressy looked bewildered.

"Chief, one second there wasn't anybody there, and the next, he stood under that light as plain as day. Just like he materialized outa nothing like one of them spirit projections mediums tell you people can send out if they concentrate . . ."

"Cut it out!" roared Chief Flannerman. "For the record, I'm going to put it down he sneaked up behind a row of bushes. This materializing business is crazy. Completely nuts! And coming from you, it's bughouse. Also, I'm going to put it down that you fired at the killer, but the light was bad and you missed . . ."

"But I *didn't* miss, Chief!"

"Cressy," m o a n e d Flannerman, "you'll have me in tears in a minute. You know as well as I that there wasn't a drop of blood anywhere around. And if you'd smacked him plumb center with a Police Special, he wouldn'ta *walked* ten feet from that lamppost, much less run fast enough to get down that whole street, which hasn't an outlet for two hundred feet, without even a single drop of blood leaking outa him! You didn't hit him, Cressy; that's as plain as the nose on your ugly face. If you'll take my advice, you'll go downstairs and use up a couple hundred rounds on the pistol practice range."

"But, Chief . . ."

"Quit trying to make more of a mystery out of this than it is!" roared Flannerman. "I've got other mysteries to solve. In fact, I just came back from a place uptown. Some screwball committed suicide because he lost his shirt in the market, and his girl in the river . . ."

Flannerman p a u s e d, glared at Cressy.

"Maybe you can materialize a ghost in *that* case too!" he accused sarcastically. "This guy—Kuttner was his name—locked himself tight as a drum in his study, sat down in front of his desk and shot himself in the chest. The only thing that has me buffaloed is how he held the gun far enough away to avoid powder burns on his shirt . . ."

"That would point to murder, rather than suicide," said Cressy cautiously.

Flannerman looked sarcastically at Cressy.

"Listen, you lug. If you'd seen the

(Concluded on page 209)

WARSHIP OF MARS

By MORRIS J. STEELE

Our back cover carries James B. Settles' exciting concept of the warship of ancient Mars. Here is the story of that enormous ship

MARS is the most ancient of the planets of our solar system. Being smaller than earth and farther from the sun, life began much earlier on its surface. Civilizations flourished while Earth was just a heaving mass of inchoate material.

As Mars is now, it is a vast desert, its oceans dried away. The only water is from the polar caps, and perhaps in the still definitely identified canals. Yet, early in its history, it had vast oceans, and certainly the science of the planet must have built amazing ships to sail those oceans. Perhaps great naval battles were fought whose fury would pale the conflicts of Earth navies into insignificance. It must have been the thought in the mind of our artist, when he conceived the ship on the back cover. So let's take a look at it, and discover just what kind of a ship it is, and what it could, and more than likely did, do.

First, we notice the tiny Martians manning a giant gun, and since we know these Martians are ten feet tall, we find that this great Martian battleship is 560 feet from mast-top to water-line. Allowing for the portion of the ship under water, we have a ship nearly 1,000 feet from keel to mast-top. This makes the length of the vessel approximately 1,500 feet, or more than a quarter of a mile!

Let's just imagine we are aboard this ship, watching what goes on as it goes to sea in search of an enemy.

We find ourselves in the officers' section of the bridge. A hundred men are here, all manning complex instruments and controls. And all are working feverishly, performing the hundreds of duties necessary to maneuver the ship. Before a group of men under the supervision of the "Battle Commander" we see a series of complex controls, but most spectacular is the complete dome-visi-screen covering them. They are, in effect, the center of a miniature reproduction of the sky and horizon line. Only sections of this are illuminated at a time, the section upon which the giant stereoscopic peri-telescopes which top the high-flung mast are trained

The instrument is trained on the horizon off the port beam now. We see, greatly magnified, in full color, and with spectroscopic third dimension, an enemy battle cruiser. It is far below the horizon, perhaps two hundred miles away (equivalent to four hundred Earth miles due to the greater curvature of the surface of Mars) and is visible because of the great height of our peri-telescopes. These scopes are two in number, and it is through this means we achieve that "third dimension" on our screen.

The two beams of light from them are synchronized and projected on our "horizon-screen" and the exact distance is registered. On our screen are permanent markings indicating the exact range of the ship we are viewing. From these, our battle commander instantly knows the correct range. He contacts the firing tower, with its giant electronic gravi-gun and gives instructions. In seconds, he will give the command to open fire. In order to witness this phase, let us switch to the firing tower.

The gun crew receives its range calculations, swings the giant gun about on its swivel, gives it the proper elevation, and opens fire.

Instead of a shell, as we expected, a silent beam of light shoots out. It is as fast as light, and it is emitted for what seems to us to be only a second. In reality this is only retinal memory. The beam shone forth only for a period of time estimated at one millionth of a second. Five seconds later another beam shoots out.

Apparently we have fired two projectiles of harmless light directly at the horizon. To us, nothing more happens. But from the battle commander a result is flashed to us. Our "shot" has struck the enemy warship directly at the water-line and upon contact its twenty-million electron energy units were transformed instantly into heat. This heat, in turn, transformed the water to live steam, resulting in a tremendous explosion which blew a giant hole in the side of the enemy. Into this hole, glowing incandescently with heat, ocean water rushed. The next explosion, caused by the second "shot" from our gun, occurs inside the enemy's hull. Now, even we on the gunners' tower see the result. Over the horizon we see a towering column of white ascending with fascinating slowness. It marks the end of the enemy ship! It has been blown to bits by split-second timing of the most tremendous energy we have ever seen unleashed from a man-made instrument!

Where does this energy come from? Down in the giant hull of this ship are great atomic generators which break down ordinary sea water into atomic electron energy, storing it in the "magazines" for discharge through the giant electron cannon. We have no time to conduct a tour over this whole vessel, but we are told it is as large as a small city, and houses a crew of ten thousand men, half of whom are marines composing a full Martian mechanized division to land on enemy territory. No ship was ever more formidable.

ASTRAL ASSASSIN

(Concluded from page 207)

way that guy had himself locked in . . . No guy could have got in to shoot him, nor got out after he did! I *know* that!"

CRESSY shrugged, then half-turned as the door opened.

"Hello, Purcell," Chief Flannerman said. "What's the dope on the bullets?"

Ballistics expert Purcell laid two bullets on the desk before Flannerman.

"This one," he explained, "came from Gardner's body. It also came from this gun . . ." he laid a pistol on the desk "and this one came from the guy in the uptown flat. It came from this other gun."

Flannerman stared stupidly a moment, then his face purpled in rage.

"You damned fool!" he roared. "You got the guns mixed! It's the other way around!"

Purcell looked indignant.

"Listen, Chief, if these guns are mixed, they were mixed before I got 'em."

Flannerman went white with fury.

"You mean to say *I* mixed 'em?"

Purcell looked steadily at the chief, then he shrugged.

"Figure it out for yourself," he said, then turned and walked out.

Flannerman sat for a moment staring at the guns while comprehension struggled to erase the perplexity from his face. Then he grinned.

"Jumpin' Jupiter!" he exclaimed. "Now I got it! Two deaths solved at one sweep! Look, Cressy, I apologize for my crack about that guy not spilling any blood. It's perfectly clear now! Kuttner killed Gardner under the lamp, took your shot in his chest, managed to get home somehow, and locked himself in to die!

"Also I apologize for calling you a bum shot. You're okay, Cressy. I'll see that you get a promotion for this. Here, take your gun and get the hell outa here."

Cressy took the gun with a relieved grin.

"Okay, Chief," he said. "I'm going. And believe me, I feel much better now. I *knew* I hit the guy . . .!"

After the patrolman had shut the door behind him, Chief Flannerman stared down at the gun and the two bullets on his desk. His face wrinkled in a puzzled frown.

"Now how in hell did I mix those guns?" he muttered. "First time I ever did a thing like that . . ."

THE END

★ THE OUTLOOK FOR RADIO ★

IN carefully guarded wartime laboratories, radio scientists are making rapid technical progress. In fact, says Colonel David Sarnoff, president of Radio Corporation of America, this progress is such that experts now foresee a great television industry emerging from the war, as well as a broadening of radio's useful services far beyond the field of communications.

Col. Sarnoff credits the industry with an important part in the United Nation's military successes during the year.

In a review of the radio achievement of 1942, he asserted that inventions and important developments which normally might have required years to bring to the practical level "have been rushed to completion in months to meet the demands of war."

"Television . . . has played an important role in air-raid instructions and civilian defense," he said. "Its laboratory status is a war secret, but those confident of the success that marks wartime developments, expect television to make possible a great postwar industry."

The comparatively new field of thermal radio will achieve new successes, it is expected, too. Radio waves, even now, may be expected to be used to heat, dry, glue, stitch, weld and rivet. And furnaces may be in reality, radio high-frequency waves—a definite postwar prospect.

It may seem like a chapter out of Jules Verne, but it's just Science at work.

"The 7 Keys to Power alleges to teach," the author says, "All the Mysteries of Life from the Cradle to the Grave—and Beyond. It tells you the particular day and hour to do anything you desire, whether it be in the light of the moon, sun, or in total darkness."

He claims, "The power to get what you want revealed at last, for the first time since the dawn of creation. The very same power which the ancient Chaldeans, Cuthic, Priests, Egyptians, Babylonians, and Sumerians used is at our disposal today."

He says, "Follow the simple directions, and you can do anything you desire. No one can tell how these Master Forces are used without knowing about this book, but with it you can mold anyone to your will."

From this book, He says, "You can learn the arts of an old Science as practiced by the Ancient Priestly Orders. Their marvels were almost beyond belief. You, too, can learn to do them all with the instructions written in this Book." Lewis de Claremont claims. "It would be a shame if these things could all be yours and you failed to grasp them."

He claims, "It is every man's birthright to have these things of life: MONEY! GOOD HEALTH! HAPPINESS! If you lack any of these, then this book has an important message for you. No matter what you need, there exists a spiritual power which is abundantly able to bring you whatever things you need."

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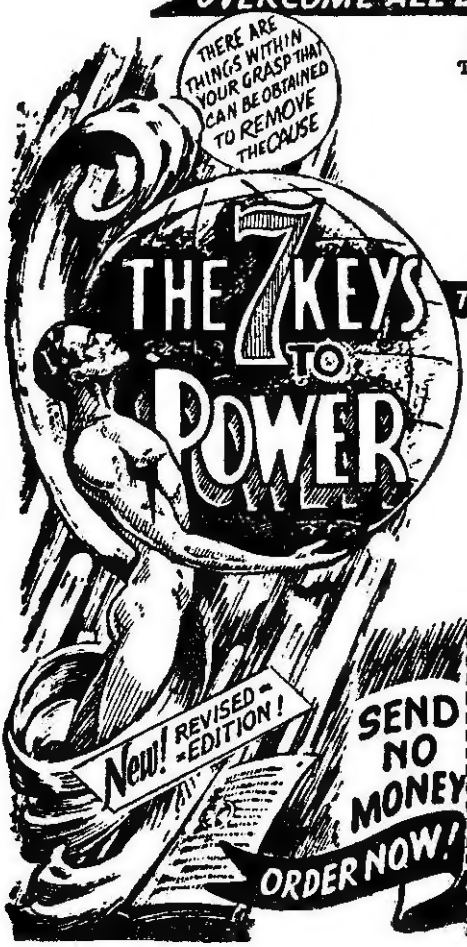
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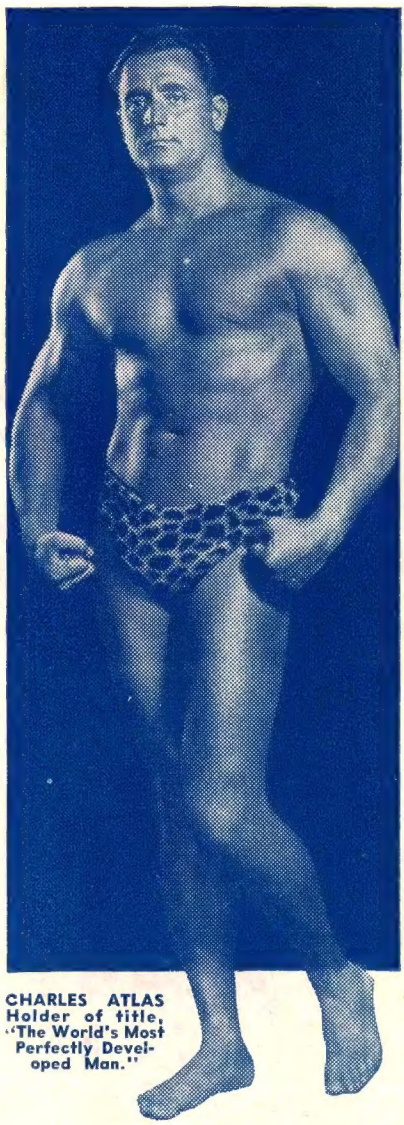

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(See page 208 for complete story)